JULY, 1955

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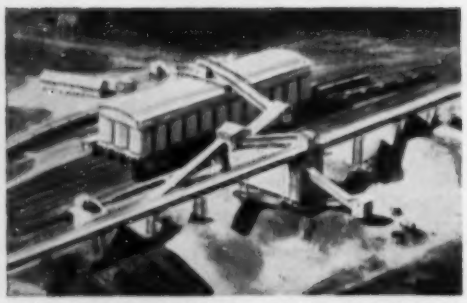

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Commenting Freely

by BRUCE MORAN

The de-salting of ocean water, for which Congress is voting $10,000,000, may sound like boondoggling to many, but to the fertilizer industry it is a serious, long-range problem—in which we should all take an active interest. For unless ways and means are found to make synthetic water at a reasonable price and in tremendous quantities, the de-salting of the ocean may be the only way to keep agriculture functioning.

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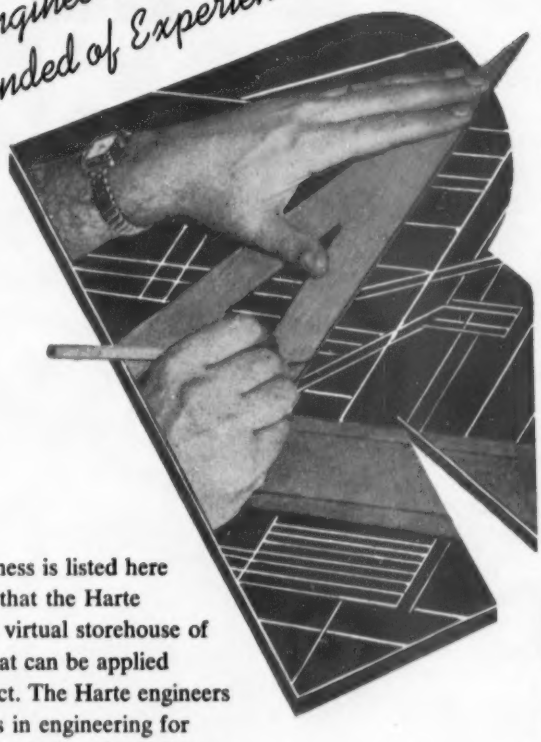

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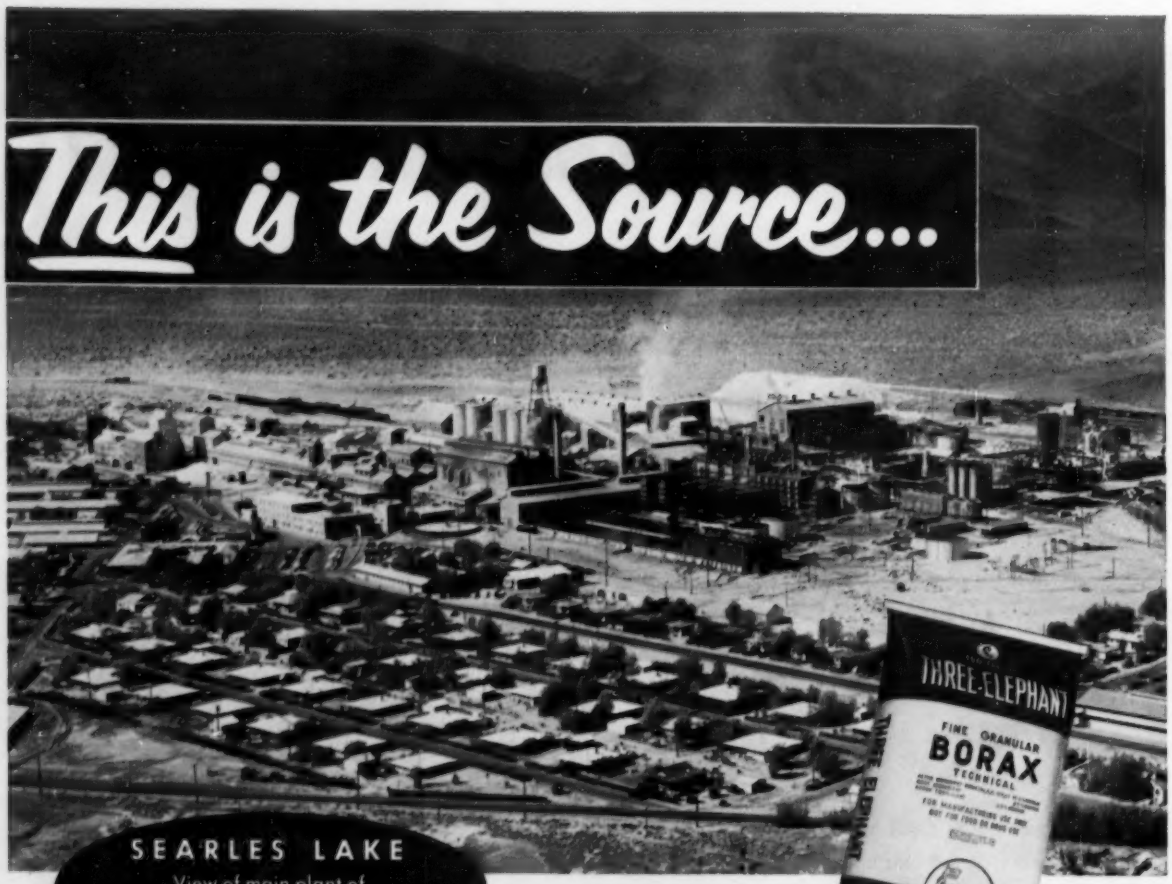

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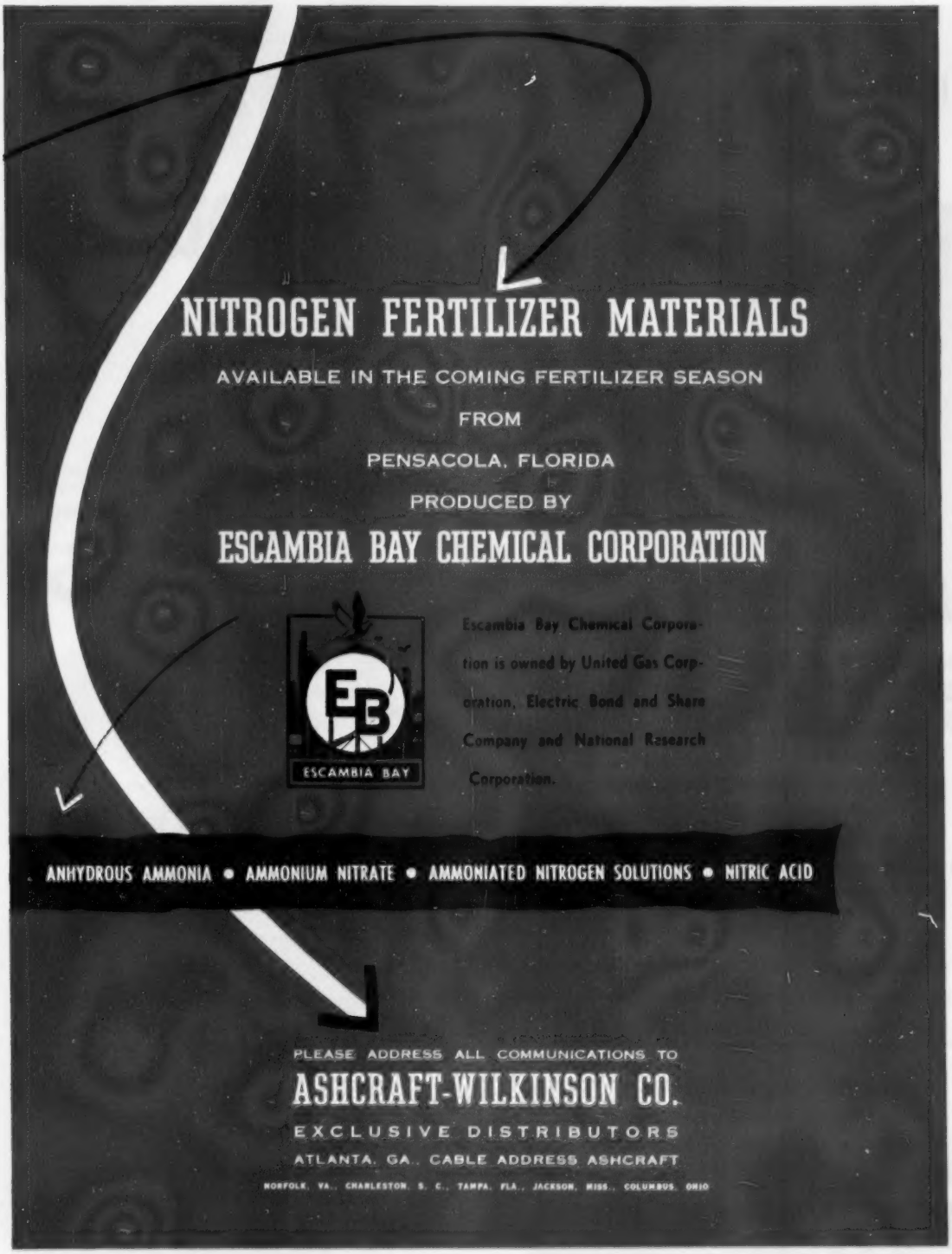
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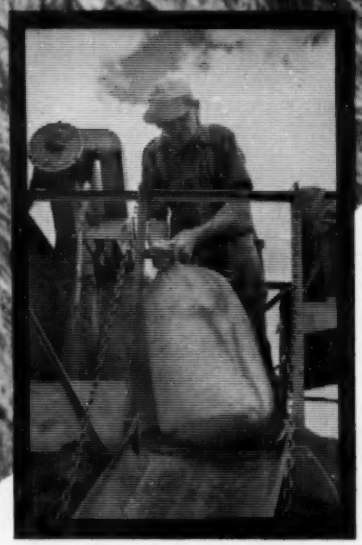

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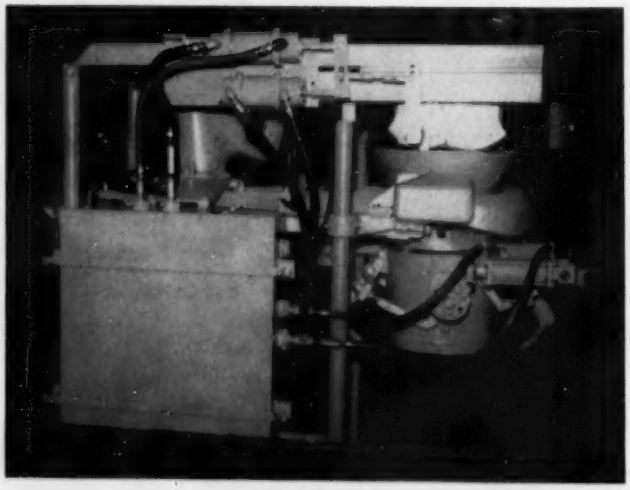

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NATIONAL PLANT FOOD INSTITUTE LAUNCHED AT GREENBRIER CONVENTION

Unseasonably cool weather and an intermittent drizzle of rain failed to chill the welcome accorded the new National Plant Food Institute at its preliminary convention when the joint memberships of the National Fertilizer Association and the American Plant Food Council met at White Sulphur Springs, W. Va. June 12-15. Leaders of the two merging organizations had so carefully integrated their plans that the meeting went along as smoothly as if the new Institute had been functioning as a unit for a long while.

Sunday afternoon, opening day of the convention, was devoted to registration and handshaking. Monday morning saw the NPFI directors-elect (whose new duties did not become official until July) meeting as a committee, while NFA and APFC Technical Committees met jointly.

Later in the morning a forum of well-qualified experts appeared in a discussion of "Problems Relating to Fertilizer-Pesticide Mixtures" that drew an overflow crowd to the meeting room.

The afternoon was filled with recreational events, and the nitrogen producers were hosts at a before-dinner hospitality hour. After dinner, the auditorium was the setting for an open house affair featuring door prizes and dancing.

Tuesday brought a forenoon session with a varied and popular program centered around a Youth Panel of boys representing major farm groups among the newer generation, and closing with an address by E. L. Peterson, Assistant Secretary of Agriculture.

E. A. Geoghehan of Southern Cotton Oil Co., New Orleans, chairman of NFA's Board of Directors, presided. In his opening remarks, he lauded the merger as "not only promoting our own interests, but those of agriculture and the nation as well." Calling for wholehearted support of the new Institute, he reminded, "This is your association. Your help and guidance is needed. Let us hear your criticisms."

Edwin Pate of Dixie Guano Co., Laurinburg, N. C., APFC Executive Committee chairman, added his endorsement of the new organization. "Now we can speak with a single voice . . . a new voice with a familiar tone," he said. "The industry needs and must have a strong, active trade association. Nothing worthwhile was ever accomplished without enthusiasm."

The afternoon once again was taken over by recreation events, with a pre-banquet hospitality hour, courtesy of the potash producers. The banquet held to an informal program featuring introduction of a few guests and officers, and a musical interlude. Dancing concluded the evening.

Wednesday morning's business session, at which Edwin Pate presided, brought two prominent legislators before the group: Harold D. Cooley of North Carolina, chairman of the House Committee on Agriculture, and John L. McClellan of Arkansas, chairman of the Senate Committee on Government Operations.

Thus, with a successful, well-attended convention behind it, the National Plant Food Institute appeared to be launched toward new heights of service to the fertilizer industry.

INSTITUTE OFFICERS

J. A. Howell, President — E. A. Geoghegan, Chairman

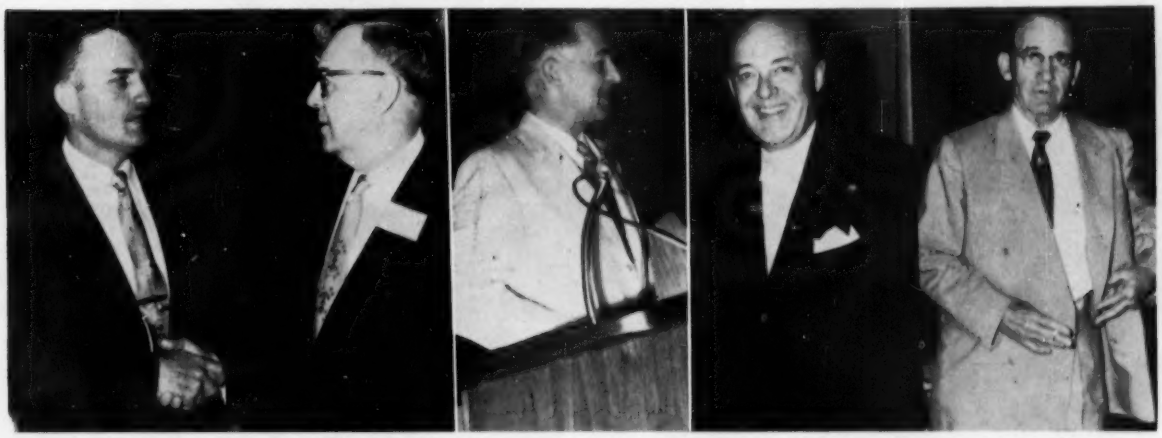
J. A. Howell of Richmond, Va., became president and E. A. Geoghegan of New Orleans, La., chairman of the Board of Directors of the newly-formed National Plant Food Institute on July 1.

Institute officers were named June 13 at a meeting of the Board of Directors-elect meeting as a committee. The Institute, combining the memberships of the American Plant Food Council and The National Fertilizer Association, now becomes the only national association of manufacturers of fertilizer and fertilizer materials.

Other officers, all of Washington, D. C., elected to assume office July 1, are: Executive Vice Presidents, Dr. Russell Coleman and Paul T. Truitt; Vice President, W. R. Allstetter; Secretary, Louis H. Wilson; and Treasurer, W. S. Ritnour.

Mr. Howell, president of the Virginia-Carolina Chemical Corp., and Mr. Geoghegan, vice-president of the Southern Cotton Oil Co., also were named to the Institute's Executive Committee.

Other members of the Executive Committee are: Louis Ware, Chicago, president of International Minerals and Chemical Corp.; W. E. Shelburne, Atlanta, vice president of Armour and Co. and president of Armour Fertilizer Works; Ralph B. Douglass, Norfolk, Va., president of Smith-Douglass Co., Inc.; John A. Miller, Louisville, Ky., president, Price Chemical Co., J. E. Totman, Baltimore, Md., president of Summers Fertilizer Co., Inc.; Edwin Pate, Laurinburg, N. C., president, Dixie Guano Co., and George E. Petitt, Washington, D. C., vice president, Potash Company of America.



NPFI Speakers: 1. Dr. Russell Coleman, NPFI, Washington. Edwin Pate, Dixie Guano Company, Laurinburg.
2. The Honorable Ervin L. Peterson, Asst. Secretary of Agriculture, Washington.
3. Rep. Harold D. Cooley of North Carolina, Chairman of House Committee on Agriculture.
4. Senator John L. McClellan of Arkansas, Chairman of Senate Committee on Government Operations.

PETERSON ON USDA POLICY

Assistant Secretary of Agriculture E. L. Peterson told the NPFI preliminary convention that "the price support policy of the Department of Agriculture is emerging as a dynamic, positive operation in the development of a sound agricultural economy" and "it is not in any way based on a desire to do away with price supports or to discredit them."

"We believe price supports are a market facilitating mechanism," he said. "They should not be perverted to other purposes."

"At this time," he continued, "with large government stocks of many commodities on hand, it is also necessary to use supports to prevent the agricultural markets of this country and of the world from being demoralized. Furthermore, until total stocks are reduced to a manageable basis, tight acreage controls will have to be continued on some crops.

"This problem of surpluses has arisen in part out of a failure to adjust to the technological revolution in agriculture. Many other problems have also sprung from this revolution. It has made necessary much larger investments per agricultural worker—the average investment per worker for agriculture as a whole is now about $14,000. This in turn requires, along with better marketing, a lowering of costs per unit of production. Otherwise farmers cannot produce profitably. In this effort to lower costs per unit of output, plant foods are highly important."

Notwithstanding increased efficiency in agriculture, the USDA official pointed out that: "Farmers must lower unit costs of production if they are to obtain proper rewards for their risks and labor. They must adjust production to markets. Research can help with more answers more quickly. Future agricultural needs will require farmers to make further increases in efficiency of our growing population is to continue well fed and is to use the same low percentage of take-home pay to provide continuously better eating."

Mr. Peterson cited that technological progress during the past 15 years has greatly increased output per acre, per animal and per man-hour and emphasized that "in this technological progress the more extensive and wiser use of plant foods has played a major role."

He concluded that "the economic level of our country is good" and added that "on the basis of present information, it appears reasonable to project that agriculture will share in this prosperity to the extent that its production can be balanced with markets, and, even more importantly, to the extent that agriculture continues to apply science and technology to its production and merchandising." He pointed out that "... output per man in agriculture in 1954 was 40 percent above 1947, and almost double 1939," adding that "this improvement must continue if agriculture is to keep pace with the rest of our economy."

COOLEY ON CONSUMER "REVOLT"

Chairman Harold D. Cooley, North Carolina, of the House Committee on Agriculture charged that "there is a deliberate and vicious effort being made to cause consumers to rise up and revolt against the farmers of our nation."

He told the convention that this is a part of a drive to destroy the farm program and that misinformation and prejudices now being spread over the country threaten to bring about depression in agriculture that will imperil the nation's total economy.

"Those who live in industrial areas and consuming centers," he said, "are being told in effect that farmers are parasites and are living high on government checks, the farmer is preying upon the public, and that the farm program is responsible for the high cost of living."

Mr. Cooley called upon the Institute and all industries closely allied with agriculture to join with farmers "to tell the truth about agriculture."

He proposed a positive, non-political public relations program for farmers — "a program to plant the truth about agriculture wherever it cannot be found—a program to bring all farmers together in a common bond—a program to cultivate understanding between farmers and their customers in the cities." He submitted a detailed outline for such a program.

Mr. Cooley said the truth is: "Consumers today are getting more and better food for a smaller portion of their income than ever before in the history of our nation. The farmer's share of the consumer's food dollar has dropped from 53¢ in 1946 to 42¢ today. The average farm per capita

Editors Honored By Institute

V. C. Weidner (left) representing Kirk Fox, editor of SUCCESSFUL FARMING, Des Moines, Iowa, and Tom Leadley (right), editor of THE NEBRASKA FARMER, Lincoln, were presented awards for "superior journalistic contributions toward the building of the soils of our nation" by the National Plant Food Institute at its preliminary convention. Presentation was made by Louis Wilson (center), Institute secretary.

Judges for the contest were seven nationally-known leaders in the field of agriculture and business. Scrolls signed by the national judges were awarded Mr. Fox (who received the award for the second time), representing the winner among magazines of more than 300,000 circulation and to Mr. Leadley, representing magazines of less than 300,000 circulation. The 44 national farm magazines entered represented a total readership exceeding 50,000,000.

income is scarcely half the per capita income of non-farm people. Farm income is declining, farmers are in trouble and they are frightened and need your help to the end that the truth might be told concerning their programs."

Emphasizing the great market for industry that has been created by improved farm income since the farm program was inaugurated 22 years ago, Mr. Cooley pointed out that farmer expenditures for fertilizer and lime have jumped from $125,000,000 in 1932 to $1,200,000,000 in 1954; that in 1932 there were 1,022,000 tractors on farms, today there are almost 5,000,000; that our farmers owned 810,000 trucks then, now they own almost 3,000,000 trucks; grain combines on farms have increased from 60,000 in 1932 to 960,000 today; corn pickers from 50,000 to 660,000; milking machines from 100,000 to 740,000.

"My one great purpose in coming here to talk to you," he told the convention, "is to plead for harmony in the ranks of agriculture—to call upon you to help us tell the truth to the consumers of our country and to bring producers and consumers together in a common cause—the general welfare of all of our people."

KEY TO PICTURES

1. Mr. & Mrs. James E. Totman, Summers Fertilizer Co., Baltimore.
2. R. H. Norris, Jr., Alabama By Products Co., Birmingham, Roy Keane, Hercules Powder Co., Wilmington, B. W. Guess, Swift & Co., Chicago.
3. Mrs. Jack Lindsey, S. B. McCoy, Chicago, Jack Lindsey, Shreveport, all with International Minerals & Chemical Corp.
4. Mr. & Mrs. Fred Purcell, Combustion Engineering Co., Atlanta.
5. W. E. Schaffnit, Stedman Foundry & Machine Co., Philadelphia, Ed Valliant, E. S. Valliant & Sons, Centerville, Md.
6. Mr. & Mrs. R. D. Molony, Mr. & Mrs. John C. Molony, all with Molony Fertilizer Co., Charleston.
7. Vincent Sauchelli, and William Caspari, both with Davison Chemical Co., Baltimore.
8. Mr. & Mrs. J. C. Molony, Mr. & Mrs. R. D. Molony, Mr. & Mrs. J. H. Schachte, all with Molony Fertilizer Co., Charleston.
9. Mr. & Mrs. Arnold Newmann, Red Star Fertilizer Co., Sulphur Springs, Texas.
10. Mr. & Mrs. D. N. Nauseman, Davison Chemical Co., Mr. & Mrs. Robt. S. Mueller, R. S. Mueller Co., Mr. & Mrs. M. G. Geiger, Davison Chemical Co., all from Baltimore.
11. K. D. Jacob, U. S. Dept. of Agriculture, Beltsville, Robert Q. Parks, Grace Chemical Co., Memphis.
12. Paul Sanders, Southern Planter, Richmond, George Gage, Anderson Fertilizer Co.
13. H. Nowak, New York, Henry Maddux, Raleigh, both with Potash Import & Chemical Corp., Arthur Smith, Olin Mathieson Chemical Corp., Baltimore.
14. Mr. & Mrs. Ben Pickering, U. S. Potash Co., New York, L. Graham Campbell, Chamberlin & Barclay, Cranbury.
15. Troy Morris, Nat'l. Container Corp., Mobile, Mrs. W. H. Norris, Savannah, J. B. Jones, E. S. Gandrud Co., Nashville, Tenn.
16. Dudley George, Richmond Guano Co., Richmond, Thos. Davies, Synthetic Nitrogen Prod., Columbia, T. H. Pitt, Planters Cotton Oil & Fert. Co., Rocky Mount.
17. Ed Kapusta, NPFI, Washington, Bruce Cloaninger, Clemson College, Clemson.
18. Mr. & Mrs. Tom Ware, International Minerals & Chemical Corp., Chicago, with daughter Sherryl.
19. Mr. & Mrs. Fred J. Woods, Gulf Fert. Co., Tampa.
20. Mr. & Mrs. Wm. Morgan, Mr. & Mrs. Wm. Chadwick, all with International Minerals & Chemical Corp., Chicago.
21. Carolyn, Mr. & Mrs. Bert Tucker, Sohio Chemical Co., Lima.

McClellan on Government Operations

John L. McClellan of Arkansas, chairman of the Senate Committee on Government Operations, described the work of that body toward streamlining federal administration. He outlined the major revisions that have taken place in recent years, and told how efficiency has been improved while the cost of government services have been reduced through intelligent study.

Basically, the senator said, all important recommendations of investigative bodies—such as the Hoover commission — have been effected with an extension of essential services and a saving to the taxpayer on these phases of the nation's operation.

While the cost of maintaining anything as tremendous as the federal framework can be nothing less than staggering, Chairman McClellan concluded, only diligent effort on the part of legislative committees dealing with government operation can assure the taxpayers of getting the maximum service out of each tax dollar.

Youth Panel

WARD is MODERATOR

Professor William B. Ward, president of the American Association of Agricultural College Editors and head of the Department of Extension Teaching and Information at Cornell University, told how "the science of farming requires trained farmers and there is no better place for training than in these fine youth organizations of our great nation, the 4-H Clubs, Future Farmers of America, and the National Junior Vegetable Growers Association."

He spoke as moderator of the Youth Panel featuring talks by representatives of the 4-H Clubs, Future Farmers of America, and the National Junior Vegetable Growers Association, the combined memberships of which exceed 2,500,000.

"Personally, and as a representative of one of our great land-grant colleges, I am happy to see the recognition the fertilizer industry is giving to our young agricultural people. I am glad to see that you recognize our farm youth as our most important crop. It's one bountiful crop grown on American farms which no one suggests needs any price supports or parity ratios.

He described 4-H, FFA, and NJVGA members as "young men and women who are dedicated to improving rural America through projects and programs that have practical applications on our farms — projects that are relatively small in size, but equally great in application to the farms on which they will be carried out in the not too distant future."

GUNTER ON SOIL BUILDING

An impressive speaker was William D. Gunter, 20, of Live Oak, Florida, national president of the Future Farmers of America, who said "soil building and a safe future for farming are two inseparable en-

Youth Panel: William D. Gunter, Future Farmers of America, Live Oak, Fla., Lamar Ratliff, 4-H Club, Baldwin, Miss., Joe Strickland, Summersville, W. Va., Tommy Dotson, NJVGA, Summersville, William B. Ward, Cornell University, Ithaca.

tities. This awareness is a sign of progress in itself, for young people hold persistently to convictions made early in their lives."

He reported that over 300,000 Future Farmers of America produced food for world demands last year, and added that "almost eighty-eight million dollars were invested in the farming business by active FFA members as of January 1 a year ago." He said that "these totals are small when compared with agriculture's massive figures, but they indicate what Future Farmers, under twenty-one years of age, are doing."

"FFA members all over the country have received encouragement and cooperation from national, state, and local organizations and individuals in the job of soil building," he reported. "The fertilizer industry has encouraged us to assume greater leadership in getting experiment station recommendations carried out on the farms. We have benefited from the technical 'know-how' and better judgment of many."

"The sound land management principles we are learning and endeavoring to put into practice are nothing new. They are measures you have considered for a long time. The difference is that we, as young people, look at these methods in a fresh, new, exciting way. We have much to learn and much to accomplish with what we already know. I believe that we can do it with people like you behind us."

JR. VEGETABLE GROWERS

Joe Strickland, 16, and Tommy Dotson, 15, both of Summersville, W. Va., told the convention "if starved plants could only squeal like hungry pigs, we would pay more attention to their hunger needs." They presented a demonstration on "soil fertility and improvement" as representatives of the National Junior Vegetable Growers Association.

"Even though they (hungry plants) can't squeal, they have means of telling us of their plant deficiencies which we call hunger signs" Tommy and Joe pointed out with photographs showing a corn leaf deficient in nitrogen. They explained that when a plant is hungry for phosphorus it usually shows up in the purplish color of the leaves "of corn" and that when potash is lacking, the corn plants show a brownish crinkling in the outer edges of the leaves, gradually working toward the midrib.

"After the deficiencies show up, they would be hard for most of us to correct," they explained. "Therefore, we recommend you do a good job of fertilization and avoid most of the trouble."

Tommy and Joe pointed out that "hungry" crops result in limited yields and quality and that if the United States is to "remain one of the best fed people in the world," plant food deficiencies must be corrected both in the garden as well as on crop lands.

In the course of their demonstration, the two young men have pointed out: **(1)** What a crop planted in a given acreage for a given yield will take from the soil in one year; **(2)** The deficiency characteristics of nitrogen, phosphorus, and potash; and **(3)** How plant food deficiencies may be corrected, using "three methods of applying a complete fertilizer to the garden and three methods of applying nitrogen in supplemental fertilization."

RATLIFF ON CORN

How a 15-year-old Mississippi 4-H Club Boy made 218 bushels of corn on an acre—while the national average was about 37 bushels—is the interesting story of Lamar Ratliff, as he told it so amusingly to his audience. Lamar, who lives on Route 2 near Baldwyn, Miss., has averaged 192 bushels on an acre for the past five years.

"Mr. Taylor Smith, my county agent, told me when I enrolled in the corn project in 1950 that if I would prepare a good seed bed, apply plenty of fertilizer and keep the weeds out, I could make 100 bushels of corn on one acre," said Lamar. "My Dad didn't believe this was possible because he had never fertilized corn and never made over 30 bushels on one acre but he was anxious for me to try and he has encouraged and helped me all the way through."

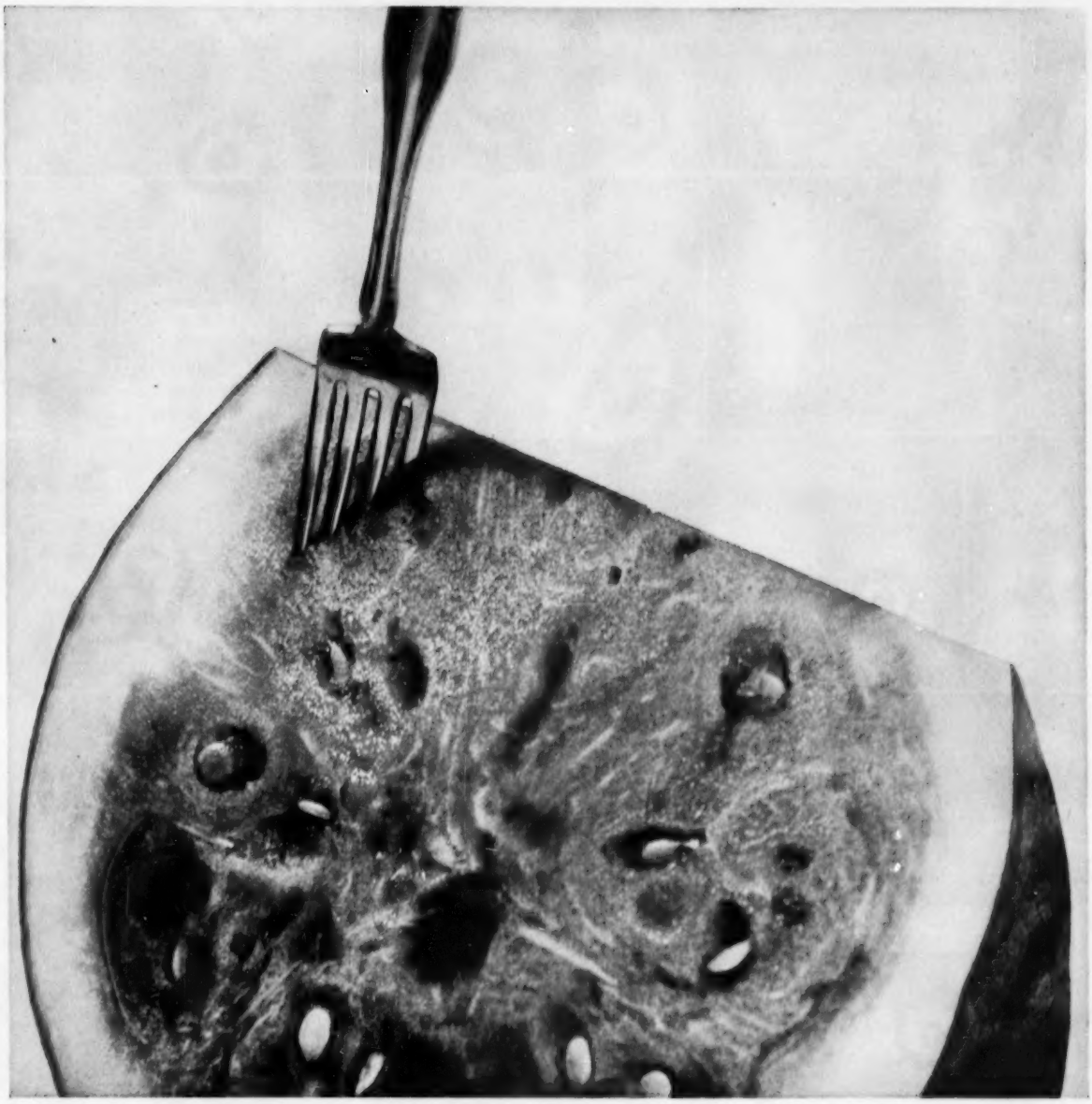
By following the fertilizer recommendations of his county agent and with the help of irrigation, Lamar reported he made 179 bushels of corn on an acre in 1950 and "had about 50 visitors that year, mostly local farmers and agricultural workers." The next year he made 187 bushels, was given many honors and "had about 100 visitors."

"I still believed that I could make 200 bushels on that acre and Mr. Smith and my Dad began to believe that I might make it," Lamar said. He made 214 bushels in 1952, and had "over 300 visitors from several states that year."

"But shucks, I still wasn't satisfied," Lamar continued. "I believe that I could make 300 bushels on that acre. I figured that if I could get 30,000 plants, one ear to each stalk, 100 ears to the bushel, that I could make 300 bushels. Mr. Smith told me he thought I was getting too many plants, but to go ahead if I wanted to try it. I put 32,000 plants on that acre and that was too many. The sun couldn't get in and I dropped down to 165 bushels. This was still high in the county though.

"You can see that disappointments happen in 4-H Club work just as they do in everything else, just as they will all through life, but I still believe I could reach that 300 bushel goal. I was determined to try with 28,000 plants. We had another severe drouth, but of course this didn't bother me like it did everyone else in the county because I had a 3-acre pond full of water. I irrigated seven times and made 218.5 bushels. It was all corn and no glue. This was high in the state. I had about 500 visitors from all over the United States, Alaska, and Hawaii.

"I was disappointed 'cause some Yankee farmer from Iowa beat me last year but he better stay on his toes because I still believe I can make 300 bushels on that acre and I'm trying again this year."



NICE SLICE

. . . and the farmers who are raising watermelons these days are receiving a nice slice of the farm income, too. The use of modern commercial fertilizers has helped to increase that income.

Potash, a major component of modern commercial fertilizers, enriches the soil, improves crop quality, builds resistance to disease, and increases total product yield. USP's high-grade muriate of potash is free-flowing and non-caking—important advantages in the production of fertilizers that help raise the crops *and* the income of the American farmer.

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CROP CHEMICALS

DISCUSSION OF FERTILIZER-PESTICIDE MIXTURES By PANEL

INTRODUCTION BY MODERATOR

M. V. Bailey, Technical Director Agricultural Chemicals Division, American Cyanamid Company

The control of pests and supplying nutrient elements with "one-shot" treatments is not particularly new. For example, sulphur may be used as a fungicide or as a soil amendment, and often is effective for both purposes. Calcium cyanamide, while commonly used as a fertilizer, is frequently applied so that it assists in the control of weeds or fungus diseases. Copper, as a spray, is quite generally used as a fungicide, but it is also useful in correcting copper deficiency in plants. Similarly, zinc salts are sometimes added to pesticide sprays to correct a nutrient deficiency. The use of pesticides mixed with turf grass fertilizers is widespread and on the increase, but the total volume is small.

However, as you know, it is only in very recent years that comparatively large tonnages of standard complete fertilizers mixed with pesticides have been made. Whether this has occurred because effective new insecticides which are compatible with fertilizers have more recently become available, or because pests have become more numerous and destructive, is probably beside the point. We are in session this morning because of a few simple facts:

1. American farmers are suffering increasingly large crop losses because of soil borne pests. 2. Chemical pesticides are available which will eradicate or control these pests at reasonable costs for the materials. 3. A number of these pesticides are compatible with fertilizers. 4. In some instances the farmer can reduce labor costs by applying both fertilizers and pesticides in one operation. In these cases the proper time of application and exact placing of the two compounds in the soil must coincide.

The quick solution to the problem would appear to be to put the two compounds together and deliver the mixture to the farmer, but in practice this is not without serious objections and obstacles. This presents to the fertilizer industry a real and somewhat complicated problem and the purpose of this meeting is to bring you some information on the subject. It is our very good fortune that four men who are interested and experienced in different phases of this subject have consented to participate in our program.

FERTILIZER – PESTICIDE MIXTURES NOW BEING SOLD ACROSS THE MAP

by K. D. Jacob
Head, Fertilizer and Lime Section, US Department of Agriculture

Fertilizer-pesticide mixtures have been used in the United States for at least 25 years, but it is only since 1948 that serious attention has been given to their possibilities for simultaneously providing nutrients to crops and controlling certain pests. It appears that South Carolina was the first state in which extensive use was made of such mixtures in controlling soil-borne insects attacking field crops. Subsequently, their use for this purpose has spread to adjacent states and to other regions.

As reported in communications from fertilizer control officials, fertilizer-pesticide mixtures were registered or sold in 41 of the 52 major political units of the United States in the year ended June 30, 1954 (Table 1). There is evidence, however, that fertilizer-pesticide mixtures of one kind or another were actually sold in practically all the units. Registrations or sales were reported for all the units in the New England, South Atlantic, West North Central, and Pacific regions.[1] In this connection, it should be noted that the fertilizer laws and regulations of some states do not require that any fertilizer-pesticide mixtures be registered specifically as such, while in certain other states the registration requirements do not apply to custom mixtures. Registration of fertilizer-pesticide mixtures is refused in Texas.

(See Table 1, Next Page)

According to reports from fertilizer control officials, fertilizer-pesticide mixtures were registered or sold in 1953-54 by a gross total of 188 companies (Table 1). The number of such companies ranged from one in the West South Central region to 70 in the South Atlantic region. The gross total of companies

[1] As referred to herein, the units comprising the several regions of the country are: **New England**—Maine, N.H., Vt., Mass., R.I., Conn.; **Middle Atlantic**—N.Y., N.J., Pa., Del., D.C., Md., W.Va.; **South Atlantic**—Va., N.C., S.C., Ga., Fla.; **East North Central**—Ohio, Ind., Ill., Mich., Wis.; **West North Central**—Minn., Iowa, Mo., N.Dak., S.Dak., Nebr., Kans.; **East South Central**—Ky., Tenn., Ala., Miss.; **West South Central**—Ark., La., Okla., Tex.; **Mountain**—Mont., Idaho, Wyo., Colo., N. Mex., Ariz., Utah, Nev.; **Pacific**—Wash., Oreg., Calif.; **Territories**—T.H., P.R., Alaska.

KEY TO INSTITUTE PICTURES

1. John C. Mooar, Sturtevant Mill Co., Atlanta.
2. L. A. Krebs, Baugh & Sons Co., Mrs. B. H. Brewster, both of Baltimore, Mr. & Mrs. Dean Gidney, U. S. Potash Co., New York.
3. R. H. Norris, Jr., Alabama By Products Corp., Birmingham, R. W. Crabtree, Mr. & Mrs. J. B. Johnson, all with Hercules Powder Co., Wilmington, Del.
4. Dr. N. E. Neidig, Balfour, Guthrie & Co., Ltd., San Francisco, A. Wilkinson, Consolidated Mining & Smelting Co., Montreal, Harold Ferguson, Balfour, Guthrie, San Francisco.
5. Mr. & Mrs. W. S. Tyler, Red Star Fertilizer Co., Sulphur Springs, Texas, Mr. & Mrs. Sam Nevins, Olin-Mathieson Chemical Corp., Little Rock.
6. Mr. & Mrs. Louis Wilson, NPFI, Washington.
7. Mr. & Mrs. D. N. Hauserman, Davison Chemical Co., Baltimore, celebrated their 35th wedding anniversary the day this picture was made.
8. Mr. & Mrs. Dallas Culver, Huston Culver Co., Seaford, Mr. & Mrs. Sid Keel, International Minerals & Chem. Corp., Chicago.
9. Louis Ware, Sherryl Ware, Mrs. Tom Ware, Tom Ware, Mrs. Louis Ware, all with International Minerals & Chem. Corp., Chicago.
10. B. C. Manker, Lansing, George Klein, Baltimore, Johnny Ground, Joplin, Joe Stough, Charleston, all with Davison Chemical Co.
11. T. C. Rogers, George Suggs, W. H. Mortimer, all with Allied Chemical & Dye Corp., New York, A. P. Sale, Jr., Sou. Fert. Coop., Richmond.
12. Howard Thulbery, Superior Fertilizer & Chem. Co., Tampa.
13. J. E. Nunnally, Cotton Producers Assoc., Atlanta, Charlie Littlejohn, U. S. Potash Co., Columbus, Cliff Collier, Potash Import & Chemical Corp., Atlanta.
14. Kim Barley, Diamond R Fertilizer Co., Winter Garden, Harold Krueger, Stedman Foundry & Mach. Co., Aurora, Ind., George Barley, Diamond R Fertilizer Co., Winter Haven.
15. C. T. Harding and A. A. Farrell, both with Virginia-Carolina Chem. Corp., Richmond.
16. Mr. & Mrs. Claude Byrd, Procter Gull, all with Spencer Chemical Co., Kansas City.
17. Mr. & Mrs. Todd Lightfoot, The Lummus Co., New York.
18. Charles Wingo and R. J. Engelhardt, both with John J. Harte Co., Atlanta.
19. P. R. Regan, American Cynamid Co., New York, Mrs. J. B. Pickering, New York, A. A. Schultz, Reading Bone Fert. Co., Reading, W. E. Weems, American Cyanamid Co., Louisville.
20. Harold Hamby, Chilean Nitrate Sales Corp., Shreveport, T. R. Cocks, Farmers Coop. Fertilizer Purch., Kenbridge, Va.
21. Mr. & Mrs. Tom Bridgers, Farmers Cotton Oil Co., Wilson, Mr. & Mrs. Robert Ashcraft, Ashcraft-Wilkinson Co., Atlanta.

Table 1. States and Territories in Which Fertilizer-Pesticide Mixtures Were Registered or Sold in Year Ended June 30, 1954, as Reported by Fertilizer Control Officials

Region	Number of States, or Territories		Gross Number of Companies Registering or Selling
	Total	In Which Mixtures Were Registered or Sold	
New England	6	6	18
Middle Atlantic	7[a]	6[b]	20
South Atlantic	5	5	70
East North Central	5	4[c]	9
West North Central	7	7	28
East South Central	4	3[d]	10
West South Central	4	1[e]	1
Mountain	8	5[f]	10
Pacific	3	3	16
Territories	3	1[g]	6
Total	52	41	188

[a] Including District of Columbia which has no fertilizer control.
[b] All units except District of Columbia.
[c] None reported for Michigan.
[d] None reported for Mississippi.
[e] Oklahoma.
[f] None reported for Colorado, Montana, and Wyoming.
[g] Puerto Rico.

Table 2. Estimated Consumption of Fertilizer-Pesticide Mixtures in the United States and Territories

Region	Fertilizer-Pesticide Mixtures		All Mixed Fertilizers, 1953-54[a]
	1952-53	1953-54	
	Short Tons	Short Tons	1,000 Short Tons
New England	400	950	352
Middle Atlantic	1,000	1,800	1,838
South Atlantic	60,000	73,200	5,022
East North Central	2,500	6,700	3,621
West North Central	2,000	42,600	1,343
East South Central	200	1,200	2,040
West South Central	100	100	713
Mountain	1,100	1,450	56
Pacific	11,100	11,100	273
Territories [b]	8,700	10,000	283
Total	87,000	149,100	15,541

[a] Scholl, Wallace, and Fox (10).
[b] Puerto Rico only.

Table 3. Summary of Fertilizer-Pesticide Mixtures with Respect to Principal Kinds of Pesticides, Crops, and Pests

Region	Pesticide Used [a]	Crop Treated [a]	Pest Controlled [a]
New England	Chlordan; DDT, lindane, 2,4-D	Turf, potato	Grubs, wireworms, weeds
Middle Atlantic	Chlordan, aldrin; DDT, dieldrin, 2,4-D	Potato, turf; corn	Wireworms, grubs, weeds; seed-corn maggot
South Atlantic	Chlordan, aldrin; DDT, dieldrin, heptachlor, toxaphene, 2,4-D	Corn, (peanut, potatoes, tobacco, vegetables); cotton, strawberry, turf	Corn rootworm, wireworms; cutworms, elongated flea beetle, grubs, maggots, mole crickets, sweet potato weevil, weeds, white-fringed beetle
East North Central	Aldrin; chlordan, DDT, dieldrin, heptachlor, lindane, 2,4-D	Corn; onion, potato, strawberry, turf	Corn rootworm, wireworms; grubs, onion maggot, strawberry root weevil, weeds
West North Central	Aldrin; chlordan, dieldrin, heptachlor, 2,4-D	Corn; potato, turf, vegetables	Corn rootworm, wireworms; cabbage maggot, grubs, onion maggot, weeds
East South Central	DDT, chlordan; aldrin, heptachlor, 2,4-D	Corn; strawberry, tobacco turf, vegetables	Corn rootworm, wireworms; ants, grubs, weeds, white-fringed beetle
West South Central	Aldrin, dieldrin, lindane, 2,4-D	Small grains, turf, vegetables	Grubs, maggots, weeds, wireworms
Mountain	DDT; aldrin, arsenicals, BHC, chlordan, heptachlor, toxaphene, 2,4-D	Potato, vegetables; alfalfa, small grains, sugar beet, turf	Wireworms; cutworms, grubs, maggots, weeds
Pacific	Aldrin; chlordan, DDT, heptachlor, IPC[b] lindane, 2,4-D	Potato, strawberry; cane berries, Hops mint, turf, vegetables	Wireworms, potato flea beetle, strawberry root weevil; grubs, spotted cucumber beetle, weeds
Territories[c]	Aldrin	Sugarcane	White grub

[a] For each region, the first group of items designates the major pesticide, crop, or pest.
[b] Isopropyl N-phenyl carbamate.
[c] Puerto Rico only.

marketing fertilizer-pesticide mixtures was undoubtedly higher than the indicated figure (188), because the information available thereon to a number of the fertilizer control officials, admittedly, was incomplete. No estimate is available for the net total of companies registering or selling fertilizer-pesticide mixtures in the United States or its several regions, but the number was smaller, of course, than the gross total. Among the individual states, however, it may be mentioned that such mixtures were registered or sold by a net total of 31 companies in South Carolina and 17 companies in Georgia, for example.

Consumption

It has been estimated that consumption of fertilizer-pesticide mixtures in the United States and Territories in the year ended June 30, 1953, totaled at least 87,000 short tons (3). Based chiefly on information supplied by control officials, experiment station workers, and manufacturers, the total quantity of such mixtures used in the year ended June 30, 1954, is estimated at 149,100 tons or 71.4% more than the consumption in the preceding year (Table 2). Besides a large actual increase in consumption, the figure for 1953-54 reflects more accurate information on the quantities used in the regions and their various units than was available for 1952-53. Although liquid mixtures of fertilizers and pesticides find some use, the data relate chiefly if not entirely to solid products, and it appears that fertilizer-insecticide mixtures accounted for at least 95% of the tonnage, the remainder being herbicides and fungicides.

(See Table 2)

Increases were shown in all the regions except the West South Central and Pacific. They ranged from nearly 15% in the Territories to 2030% in the West North Central region. In quantity, the largest increases were in the West North Central region (40,600 tons, 2030%) and the South Atlantic region (13,200 tons, 22%) Together, the latter two regions accounted for nearly 77.7% of the total consumption of fertilizer-pesticide mixtures in 1953-54 and for 86.6% of total increase over 1952-53.

Among the individual states and territories, the 1953-54 consumption is estimated to have been highest in South Carolina (30,000 tons), as was also the case in 1952-53. It was 10,000 tons or more in five other units, in the descending order North Carolina, Iowa, Florida, Nebraska, Puerto Rico.

No information is available on the

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Custom-Formulated MINERAL MIXTURES

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amount of fertilizer-pesticide mixtures used in Hawaii. It is known, however, that a very small quantity of such mixtures, prepared by Mainland companies, was sold in the Islands (11). A considerable quantity of nitrogen fertilizer solutions containing insecticides, including DDT, malathion, and parathion, was used as foliar applications to pineapples, but the combinations were prepared by the pineapple growers rather than purchased as premixed formulations. Tests are being made of mixtures of fertilizers and insecticides (aldrin, dieldrin, chlordan, heptachlor) for control of root-pitting pests of sugarcane.

On the basis of the data in Table 2, the consumption of fertilizer-pesticide mixtures in the United States and Territories in 1953-54 amounted to only 0.96% of the total consumption of mixed fertilizers. Among the regions, the proportion ranged from 0.01% in the West South Central to 3.2% in the West North Central, 3.5% in the Territories, and 4.7% in the Pacific.

Only limited information is available on the acreages of land receiving fertilizer-pesticide mixtures. According to Dr. Lilly (6), 600,000 acres of corn in Iowa were treated with soil insecticides in 1954, of which 362,500 acres (60.4%) received fertilizer-insecticide mixtures. In Nebraska, such mixtures were applied to 12.7% (220,000 acres) of the 1,740,000 acres of corn that were treated with soil insecticides. Fertilizer - insecticide mixtures were used on 10% of the 125,000 acres of Illinois corn that received soil insecticides. Use of the mixtures in these States was aimed chiefly at control of the corn rootworm, and aldrin was by far the dominant insecticidal constituent.

It is reported (1) that fertilizer-insecticide mixtures were applied to more than 108,000 acres of cropland in South Carolina in 1954. The following crops were so treated: corn, approximately 100,000 acres, to control sand wireworm, corn rootworm, and seed corn maggot; Irish potatoes, more than 5,000 acres, to control wireworms; pastures, 1,200 acres, to control white grubs; sweet potatoes, 1,000 acres, to control wireworms and flea beetles; snap beans, 1,000 acres, to control seed-corn maggot; and unknown acreages of cotton (sand wireworm), truck crops (mole crickets), and lawns (white grubs). Chlordan was the principal insecticidal constituent of the mixtures.

Factors of Use

In 1953-54, as in the preceding year, the total quantity of insecticides applied in mixture with fertilizers far outweighed that of all other pesticides (herbicides, fungicides, etc.) used in this way. Solid mixtures of fertilizers and herbicides were widely used, chiefly on lawns and turf, but in relatively small total quantity. Some use was made of fertilizer-fungicide mixtures. Attention continued to be given to the possibilities in adding insecticides and herbicides to aqueous solutions of fertilizers applied to corn and other field crops (2, 4). The principal kinds of pesticides, crops, and pests involved in the use of fertilizer-pesticide mixtures have been discussed by Jacob (3) and Kulash (5), among others, and some data for 1953-54 are summarized in Table 3.

(See Table 3, Page 26)

Aldrin was the insecticide used in the largest total quantity in mixture with fertilizers. Chlordan ranked second, and DDT was probably third. Arsenicals, BHC, dieldrin, heptachlor, lindane, and toxaphene were among the compounds used in still smaller quantities. 2, 4-D was the principal herbicidal constituent of the mixtures.

Aldrin was by far the dominant pesticidal constituent of the mixtures in the North Central and Pacific regions and the Territories. Chlordan was the chief pesticide added to fertilizers in the South Atlantic region and probably in the Middle Atlantic and New England regions. It appears that DDT ranked first in the East South Central and Mountain regions.

Although information on the quantities of fertilizer-pesticide mixtures applied to various crops is quite incomplete, the total quantity of such mixtures used for controlling insect pests of corn, chiefly corn rootworms, wireworms, and the seed-corn maggot, was undoubtedly much greater than that for any other crop. It is estimated that corn received more than 50% of the total tonnage of fertilizer-pesticide mixtures in 1953-54. Most of the remainder was applied to potatoes, sugarcane (in Puerto Rico), and vegetables.

Corn rootworms and wireworms—attacking corn, potatoes, and other crops—were the chief pests controlled by fertilizer-pesticide mixtures. Control of these pests was probably an objective of at least two-thirds of the tonnage of the mixtures used in 1953-54.

As in the preceding year (3), addition of pesticides to fertilizers was mostly to mixtures containing two or more of the primary plant nutrients (N, P_2O_5, and K_2O), and chiefly to mixtures containing all three of the nutrients, but in a few instances additions to straight materials—including ammonium sulfate, triple and normal superphosphates, potassium sulfate, and gypsum—were made. The quantities of admixed aldrin ranged from 1 to 30 pounds per ton of mixtures; chlordan, 0 25 to 10 pounds or more; and DDT, 1.5 to 40 pounds.

Fertilizer-Pesticide Mixtures in Foreign Countries

Fertilizer-pesticide mixtures are used in a number of foreign countries, among which are Canada, Great Britain, and New Zealand.

Consumption of fertilizer-pesticide mixtures in Canada in 1953-54 totaled about 500 tons, approximately half of which contained a fungicide (thiram) for control of black rot of the sugar beet (7). Mixtures used in the next largest quantity contained aldrin, chiefly to control wireworms attacking corn. Combinations of fertilizers with lindane and 2, 4-D were used to control lawn pests, and mixtures of secondary and trace element fertilizers with 2, 4-D were marketed for control of broad-leaved weeds in cereal crops.

It is reported (9) that 6,200 tons of superphosphate-DDT mixtures were used in New Zealand in 1953-54 to control grass grubs and other pests. Mixtures of 2, 4-D with superphosphate and limestone, respectively, are also marketed in New Zealand (8).

Addition of aldrin to mixed fertilizers, chiefly the 8-8-12 and 9-9-15 grades, is practiced by several companies in Great Britain to control soil-borne pests (principally wire-

worms) of potatoes and other crops. An indicated quantity of aldrin is 4 pounds per ton added as a 30% emulsion to granulated mixtures.

Outlook

For the country as a whole the outlook is promising for continued growth in the use of fertilizer-pesticide mixtures, according to fertilizer control officials and experiment station workers. Expanded consumption is expected in 32 of the states, especially those comprising the North Central region. Increases are anticipated for all states in the Pacific and South Atlantic regions and for many of the states in the other regions except the West South Central. Even in the last region it would not be surprising if further research leads to increased use of the mixtures. Whereas the consumption trend is said to be uncertain in Puerto Rico, there would seem to be opportunity for expanded use of fertilizer-pesticide mixtures in Hawaii.

Acknowledgment

Thanks and appreciation are extended to the control officials, experiment station workers, and fertilizer manufacturers who supplied most of the information on which this paper is based.

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HARDING PRESENTS RESULTS OF FERTILIZER INDUSTRY QUESTIONNAIRE

by C. T. HARDING
General Manager, Fertilizer Division
Manufacturing Department, Virginia-Carolina Chemical Corporation

After accepting the invitation to serve on this panel, I wrote to a number of our industry members and asked for their views, based on their experience in this field, and I am going to try to give you a cross section of the thinking of this group. Incidentally, they were both large and small producers in areas where these mixtures are being furnished. I believe the reaction of the industry members contacted could be summed up under seven headings as constituting seven basic problems:

1. Proper mixing. 2. Analysis. 3. Public relations. 4. Product liability. 5. Tags, labels, and registration. 6. Safety precautions. 7. Frequency of changes occasioned by differences in grade and amount of pesticides required.

Proper Mixing

Unless we can give our customer a product that we feel is properly mixed and one that will give uniform treatment of the soil, then in my humble opinion we should never take his order.

The commonly used insecticide materials can best be incorporated in a fertilizer if used in liquid form by spraying the proper amount of insecticide on a pre-weighed amount of fertilizer—this to be done in a batch or ribbon type mixer. The insecticide material should be sprayed on the tumbling mix slowly and

1. J. C. Anderson, Agriform Co., Santa Anna, Calif., B. H. Jones, Sunland Industries, Fresno.
2. W. H. "Buck" Appleton, Potash Co. of America, Atlanta, M. J. Clement, Merchants Phos. & Fert. Co., Pensacola.
3. Wm. T. Dible, John D. Zigler, both with Potash Division, International Minerals & Chemical Corp., Chicago.
4. Dr. & Mrs. Frank L. Holland, Fla. Agric. Research Institute, Winter Haven, Fla.
5. Mr. & Mrs. Tom Bridgers, Farmers Cotton Oil Co., Wilson, N. C.
6. George McCarty, Ashcraft-Wilkinson Co., Atlanta, J. D. Dawson, Fidelity Chemical Corp., Houston.
7. Mr. & Mrs. H. E. Lefevre, French Potash & Import Corp., New York.
8. Mr. & Mrs. Horace Albright, U. S. Potash Co., New Rochell.
9. J. H. Carpenter, Koppers Co., Pittsburgh, Shelton Appleton, Potash Co. of America, Shreveport.
10. Dr. & Mrs. R. P. Thomas, International Minerals & Chemical Corp., Chicago.
11. Mr. & Mrs. Leroy Donald, Lion Oil Co., El Dorado.
12. E. P. Cramer, John Sanders, both with Mississippi River Chemical Co., St. Louis.

the mixer should make several revolutions after all the liquid has been introduced.

Solid small granular material can also be mixed satisfactorily with the same type of equipment.

In a number of operations at the present time the liquid spray, in the case of a liquid material, is calibrated and is sprayed on top of the fertilizer on a belt moving into the bagging machines—just how satisfactory this is going to be remains to be seen. Would you consider this satisfactory mixing?

I understand that a few mixers just add the material to the fertilizer in solid form as it is being bagged. Just how well these goods are going to satisfy the trade is also a question.

Analysis

Our good friends in the fertilizer control offices have seen our problem and have worked with members of the industry in a most cooperative manner. So far as I know, to date one State now has a 1-½ pound tolerance on 8 pounds of Aldrin, or 15%; this, however, is the amount generally used per ton in that state. Usually the guaranteed amount is so small that tolerances will also be small, and to stay within such limits gives the mixer very little leeway for error in mixing or sampling.

We have seen quite a few analyses published on these mixtures and surprisingly some have not held up too well, even with the very best of care in mixing; and surprisingly others have been close; in one or two cases they have exceeded the guarantee. I feel reasonably sure that all producers have actually tried to properly calibrate and weigh the pesticide added, but now to get a good mix and representative sample of these goods is still a problem.

One control official told me on two different occasions about instances where department representatives in both his and another state had seen goods mixed after being properly weighed and all had supervised the sampling. In one case the samples never did show up as having the full quantity of pesticide that was added. In another case eight or ten samples were taken of a mixture that was well supervised and no two ran alike — some were considerably over and others were deficient to the point of penalties.

Public Relations

This could or could not be a problem, based on the location of the individual plant. Fumes from the use of liquids, or dust from the use of solids, along with the pungent odor of some of these materials, could be the cause of neighborhood complaints. I can think of a few plants that I am quite sure would have troubles of this kind were they to undertake to make fertilizer-insecticide mixtures.

Product Liability

This could be serious. Experiences to date, so far as I can learn, have not been too bad in the East and Midwest, but what the future holds in this category remains to be seen. When a producer mixes these pesticides in his goods and guarantees the fertilizer, as well as the insecticide value, it seems to me "he has the ball on his alley" and it could go in a number of directions.

Most of the people the writer has contacted outside of our industry, but having close and very friendly dealings with us, say that the possible dangers from this subject alone would keep them from mixing the two materials.

Tags, Labels and Registration

How many of you gentlemen know how much time someone in your organization has spent working out State and Federal requirements for the proper labeling and registration of these mixtures? I am quite sure that if you are shipping such mixtures from a number of plants, into several states, and in several grades

1. Mr. & Mrs. W. M. Campbell, Dixie Guano Co., Laurinburg.
2. Mr. & Mrs. Fred Techter, Nitrogen Division, Allied Chemical & Dye Corp., New York.
3. Dr. & Mrs. J. K. Plummer, Tennessee Corp., Atlanta.
4. Lawrence Byck, U. S. Industrial Chemicals, New York, Jim Menn, Madison, Wisc.
5. Mr. & Mrs. B. B. Fail, Rogers & Hubbard Co., Portland, Conn.
6. Fred Bryan, Atlanta, Edwin Sterne, Jr., Columbia, both with Chilean Nitrates Sales Corp., W. J. Chapin, Swift & Co., Chicago.
7. Mr. & Mrs. John J. Weldon, E. Rauh & Sons Fertilizer Co., Indianapolis.
8. Mr. & Mrs. Lee Karp, Morris Karp & Son, Farmingdale, N. Y., Bill Schaffnit, Stedman Foundry & Machine Co., Philadelphia.
9. T. C. Rogers, Allied Chemical & Dye Corp., New York, Carl Sparks, Buhner Fertilizer Co., Seymour, Ind.
10. Mr. & Mrs. John Perryman, R. D. Cole Mfg. Co., Newnan, Ga., J. P. Burrows, International Minerals & Chemical Corp., Chicago.

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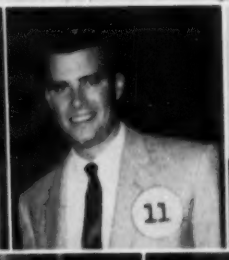
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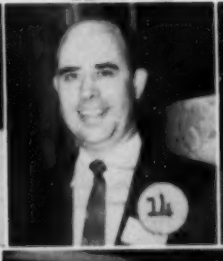
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with varying amounts of pesticides, you have kept someone very busy in this assignment.

For a small mixer shipping one or two grades within his own state, the problem is relatively simple. But for the larger plant shipping many grades into several states, this problem becomes very complicated and the attaching of multiple labels and tags during a busy, short fertilizer & shipping season is far from simple.

Safety Precautions

Our experience has been limited in the use of these materials, and being something relatively new in our business, most of us have been very careful in the handling and mixing.

Dust masks, rubber gloves, and other protective devices have been furnished; and so far, in no case, with our company, have men been exposed continuously for any great length of time.

Frequency of Changes Occasioned by Differences in Grade and Amount of Pesticides Required

Change-over is a time-consuming operation that cannot be passed over lightly. A number of our industry members who were contacted stated that they have certain hours, or certain days, to make delivery of these mixtures; others confine their mixtures to one or two grades with one specific amount of pesticide. Others take them as they come and say it really disrupts their operations when they have several orders arriving at intervals in the same day and requiring varied analyses and mixtures.

Another subject to be considered is: **NEW AND MORE POTENT MATERIALS.** Once we get farmers in the habit of getting their pesticides mixed in their goods, we are then going to be expected to continue such mixtures regardless of how objectionable or dangerous new materials may become. It seems to me we are setting a precedent now that may be embarrassing at some later date.

If our industry had any reasonable assurance that this practice were here to stay, for even several years and in sufficient quantity, we could afford to install proper equipment to do this job on a uniform, economical bases and eliminate most all of the problems that now give us concern.

The fertilizer industry itself, I am quite sure, would rather not be called upon to furnish these mixtures; however, we have always been interested in the farmer's day-to-day problems and until a better and more economical means of applying these pesticides is found, I am quite sure we will find ways and means of mixing and delivering these goods to the farmers of our country.

In a paper given several months ago on this subject of Fertilizer-Pesticide Mixtures, our dear friend K. D. Jacob made these conclusions, with which we wholeheartedly agree, and I quote:

"In conclusion it may be said that the demand for fertilizer-pesticide mixtures will continue, likely in increasing volume, so long as their use affords a convenient, economical and reasonably satisfactory way of combining crop production with pest control. Hence it is important that research be expanded on the many problems of their production, distribution, and utilization. Increased effort should be directed toward the development of equipment for applying the pesticide separately from but simultaneously with the fertilizer, whereby the rates of application of the two materials can be regulated independently of each other. Use of such equipment, now under development by at least one company, would eliminate a major problem of combination fertilizer-pesticide application."

KEY TO PICTURES

1. Swapping notes and exchanging addresses are: A. A. Rahimtula, Hyderabad Chemical Fertilizers, Ltd., Secunderabad, India; Bill Gunter, Future Farmers of America, Live Oak, Fla.
2. Mr. & Mrs. W. A. Webster, Quaker Oats Co., Chicago.
3. Ralph Benson, M. H. Lockwood, International Minerals & Chemical Corp., Chicago.
4. George McCarty, Ashcraft-Wilkinson Co., Atlanta, A. D. Strobhar, Southern Fertilizer & Chemical Co., Savannah.
5. Willard Garman, NPFI, Washington, Dr. & Mrs. Rodney Berry, Virginia Dept. of Agriculture, Richmond, Bruce Cloaninger, Clemson College, Clemson, Bruce Poundstone, University of Kentucky, Lexington.
6. Mr. & Mrs. W. H. "Buck" Appleton, Potash Co. of America, Atlanta, Earl Day, Walnut Ridge, Ark., L. G. Black, Corning, Ark., both with Ark-Mo. Plant Food Co., Kirk Sanders, Spencer Chemical Co., Atlanta.
7. Shirley Graumann, Lockland, Ohio.
8. Lee Karp, Morris Karp & Son, Farmingdale, N. Y., Howard McIver, Alex M. McIver & Son, Charleston, S. C.
9. Mr. & Mrs. Byron Stewart, Jones & Laughlin Steel Co., Pittsburgh, Mr. & Mrs John Watt, Armour Fert. Works, Atlanta.
10. Ralph Waltz, Wilson & Geo, Meyer Co., San Francisco, Al Bowers, Tracy Adcock, and W. F. Price, all with Swift & Co., Chicago.
11. R. A. Heuerman, International Minerals & Chemical Corp., New York.
12. Malcolm McVickar, William Rittnour and Delbert Rucker, all with NPFI, Washington.
13. B. W. Guess, Swift & Co., Chicago, Mr. & Mrs. Jim Devlin, New York, Joe Harrell, Atlanta, all with Southwest Potash Corp.
14. Dave Weatherly, D. M. Weatherly Co., Atlanta.
15. Werner Duehrssen, Potash Import & Chemical Corp., New York, P. J. Gum, Ridge Fertilizer Co., Lake Wales, Fla., C. W. Collier, Potash Import & Chemical Corp., Atlanta.
16. L. N. Wright, Phillips Chemical Co., Bartlesville, Mr. & Mrs. Raoul Allstetter, NPFI, Washington, Ray King, Georgia Fertilizer Co., Valdosta.
17. Frank L. Holland, Fla. Agric. Research Inst., Winter Haven, K. D. Jacob, U. S. Dept. of Agric., Beltsville.
18. Steele Wright, Texas Farm Products, Nacogdoches, Tracy Cunningham, Armour Fert Works, Orlando, Fla.

ATTORNEY WARNS OF LIABILITIES AND SUGGESTS PRECAUTIONS

by JOHN D. CONNER
Attorney, Sellers and Conner

Product liability claims are not new to either the pesticide or the fertilizer industries. Both products offer a high potential benefit to the user resulting from increased yields and improved quality. Yet, by their inherent nature the use of both products is accompanied by a potential threat of injury or loss of a crop many times more valuable than the article itself.

Although the fertilizer industry has had its share of claims in the past, it has not been plagued with such a heavy volume of such claims as has the pesticide industry. Accordingly, my remarks will be based on the assumption that if you as a fertilizer manufacturer, attempt to mix pesticides with your materials there may arise liability problems with which you are not familiar.

I recently had an opportunity to make a comprehensive survey and analysis of the product liability claims made in the past few years against the pesticide industry. This survey showed that at that time, pending claims amounted to several million dollars.

The fact that the precise manner in which a product liability claim might arise cannot be foreseen makes the need for careful planning all the more imperative. The injury may be to plants grown in soil treated with the mixture shortly prior to planting or the injury may arise in subsequent years from soil contamination resulting from application in earlier years. The alleged damage may arise from the failure of the material to give adequate control, or it may arise from an off-flavor in the produce. It could arise because the use of the mixture resulted in a residue in the produce resulting in seizure under the Federal Food, Drug and Cosmetic Act. The damage could arise from personal injury to the applicator or to others in the environment in which the mixture is used or produced.

Whatever the type of injury may be, it would arise in all probability because of one or more of three

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3. P. J. Prosser, Jr., Baugh & Sons Co., Baltimore, K. D. Morrison, Phillip Bros. Chemicals, New York.

4. W. W. Johnson, Agricultural Products Corp., Danbury, Conn., Richard Hackett and Harvey Melson, both with Melson Fertilizer Co., Georgetown, Del.

5. Gaines Boynton, Atlanta, W. G. Dennis, Raleigh, both with International Minerals & Chemical Corp.

6. J. J. Joyce, Reliance Fertilizer & Lime Corp., Norfolk, G. W. Gorham, Jr., Planters Cotton Oil & Fert. Co., Rocky Mount.

7. Mr. & Mrs. Tom Leadley, Nebraska Farmer, Lincoln.

8. M. D. Broadfield, Arkansas Plant Food Co., North Little Rock, J. R. "Dugan" Taylor, Grand River Chemical, Div., Deere & Co., Tulsa.

9. Tom Meylor, Crystal Chemical Co., S. Sioux City, Neb., W. T. Thompson, Blue Valley Fert. Co., Marysville, Kans., R. P. Cloud, Spencer Plant Foods.

10. G. H. Kingsbury, Kingsbury & Co., Indianapolis, Joe C. Sharp, Spencer Chemical Co., Kansas City.

11. Leonard Gopp, International Minerals & Chem. Corp., Chicago, Al Weed, Olin Mathieson Chemical Corp., New York.

12. Mr. & Mrs. Clay Davis, Woodward Iron Co., Woodward, Ala.

13. T. C. Griffeth, Cotton States Fertilizer Co., Macon, John Sanders, Mississippi River Chemical Corp., St. Louis.

14. Chas. F. Martin, and C. R. Martin, both with Miami Fertilizer Co., Dayton, Ohio.

15. G. A. Wakefield, Olin Mathieson Chemical Corp., Little Rock, H. V. Miller, Armour Fert. Works, Atlanta.

16. Mr. & Mrs. John V. Collis, and John Sargent, all with Federal Chemical Co., Louisville.

17. Col. J. Scott True, WFTM Radio Station, Gil Nooe, Ohio Valley Fert. Cooperative, both from Maysville, Ky.

18. Harold Kitchens, Aurora, Fred Lange, St. Augustine, Fla., both with Stedman Foundry & Machine Co.

basic deficiencies.

The first basic deficiency may be the failure to conduct adequate research prior to marketing the product to determine its capabilities and its limitations, and the manner in which it can be properly and safely used. You as a mixer may say that conducting of this research is the responsibility of the producer of the basic ingredients. This may be correct as between you and the basic producer. However, when you market the product it becomes your responsibility. You assume the obligation of knowing its capabilities and

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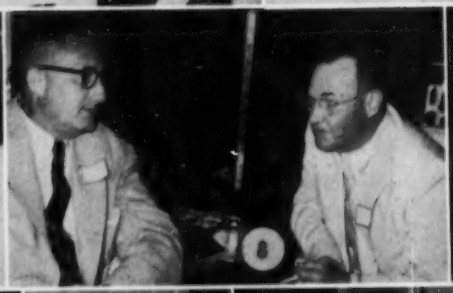
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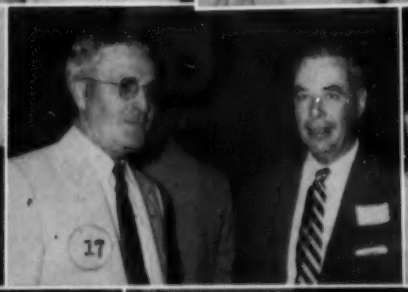
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its limitations and of the possible pitfalls connected with its use.

The second basic deficiency may be the failure to use adequate production controls. The production of fertilizer - pesticide mixtures may well present production and control problems not encountered in normal fertilizer production.

The third basic deficiency may arise from a failure to label or advertise the product in accordance with statutory standards. The federal and state pesticide laws contain s t r i g e n t regulatory requirements, some of which have no counterpart in the fertilizer laws. Rodney Berry will discuss these requirements. As he does, bear in mind that a failure to meet these statutory requirements may become the basis of a liability action against you.

Do not make the mistake of believing that just because a fertilizer-pesticide mixture has been accepted for registration by both the pesticide and fertilizer control officials it thereby meets all the statutory standards of both laws. Bear in mind that in a liability suit premised upon statutory violation, it will be the jury and not the regulatory official who will determine whether your product met the statutory requirements.

Of course, the fact that a crop to which your product was applied was injured, does not necessarily establish that it was caused by a deficiency in your product. It may have been applied contrary to directions or it may have been applied with contaminated equipment. The injury may have been produced by factors totally unrelated to your product. However, when injury occurs, the grower is going to start looking for the cause. Experience has shown that frequently the pesticide is chosen as the culprit. There is no reason to assume that fertilizer-pesticide mixtures will completely escape this suspicion.

Accordingly, your production control procedure must serve two functions. The first is to assure that all batches of the material produced accord with the standard and with your guarantee developed after sufficient research. The second is to enable you to trace back and determine if there was any deficiency in your product if it is later alleged to have produced injury.

Of course, the details of each production control system will vary with each plant and with each product. However, there are some fundamentals which are common to all such systems.

The batch production records should be as complete and detailed as is practicable. I believe that as a minimum, the batch production records should show not only the exact quantities of each ingredient which went into the batch, but also the initials of the employee who calculated the formula and weighed the quantities. They should identify the source of all ingredients. If the ingredient containers bear batch numbers, I believe these batch numbers should be recorded on your batch production records. It may be necessary to check back for deficiencies.

All quantities produced should be designated by batch number. It is not enough that the batch number indicate only the date and place of production. It should designate each separate batch produced even if there are identical consecutive batches produced. A representative sample should be retained from each batch for as long a period as is practicable. This period should not be shorter than the growing season of any produce on which this mixture might be used. It would be desirable that it be retained until the statute of limitations would have run on any injuries which may be alleged to have been caused by this mixture. In most cases, this would be three years from the date on which the mixture was applied.

How are batch numbers to be used to be of maximum value? The identification of each package by batch number is, of course, the most apparent and probably the most rewarding use of batch numbers. If the container of the questionable product is still available at the time the liability action arises, the answer is simple. All necessary tests can be performed with the retained samples from that batch. Frequently, additional packages from the same batch can be located in the hands of other users, and show there was no deficiency.

But frequently, the container has been destroyed by the time the action arises. The batch number may still have a real value if the nature of your product and the method of distribution is such that it is practicable to record batch numbers on your shipping documents and invoices. If the product is shipped directly by you to the user, the designation of the batch number on the shipping documents may enable you to identify the questionable batch precisely even though the container has been destroyed.

If you ship to a distributor and the distributor, in turn, sells to the user, the problem becomes more complicated. Even in this situation the designation of the batch numbers on the shipping documents covering your shipment to the distributor may enable you either to identify precisely or sharply limit the possible batches out of which the questionable product could have come.

I recommend that you include a disclaimer, or a non-warranty statement, as a standard part of your label, contract, invoice and other documents incident to the sale of a fertilizer-pesticide mixture. Such a disclaimer is not a cure-all. It is not a substitute for adequate labeling or a sound product. But if it is properly drafted and used, it may play an important role in reducing your contingent liability. The job of drafting such a statement is one for your counsel.

Some of the recommendations which I have made may not be

KEY TO INSTITUTE PICTURES

1. Delbert Rucker, NPFI, Washington, Sid Rydell, Smith-Douglass Co., Inc., Norfolk; (Sid did not pose for this one—was busy putting together a "hunt and peck" memo).
2. Tom Athey, Albemarle Paper Mfg. Co., Richmond, Mr. & Mrs. A. A. Schultz, Reading Bone Fert. Co., Reading.
3. Mr. & Mrs. Joe Howell, Virginia-Carolina Chem. Corp., Richmond.
4. Mr. & Mrs. T. N. Pitt, Mr. & Mrs. G. W. Gorham, Jr., all with Planters Cotton Oil & Fertilizer Co., Rocky Mount.
5. Dr. & Mrs. Russell Coleman, NPFI, Washington.
6. Jack Bryant, Phillips Chemical Co., Tampa, Jack Criswell, Agricultural Ammonia Institute, Memphis, Bill Scanlon, Phillips Chemical Co., Bartlesville.
7. Mr. & Mrs. Bob Linderman, and S. B. McCoy, all with International Minerals & Chemical Corp., Chicago, Ed Shelton, Tennessee Corporation, New York.
8. W. N. Norris, Jr., Alabama By-Products, Birmingham, E. T. Spiddle, Capital Fertilizer Co., Montgomery.
9. H. H. Tucker, Sohio Chemical Co., Lima, H. E. Wood, Farmers Fertilizer Co., Columbus.
10. Joe C. Sharp, Mr. & Mrs. Harold Ihde, all with Spencer Chemical Co., Kansas City, A. D. Strobhar, Southern Fertilizer & Chem. Co., Savannah, Don Aitken, Midwestern Phosphate Co., Madison, Wisc.
11. Mercer Rowe, Ashcraft-Wilkinson Co., Atlanta.
12. Alfred Dickinson, Virginia-Carolina Chem. Corp., Richmond, Mr. & Mrs. John B. Sanford, Jr., Armour Fert. Works, Atlanta, Mrs. Alfred Dickinson.
13. Mr. & Mrs. P. J. Gum, Ridge Fertilizer Co., Lake Wales, Fla., Mr. & Mrs. Milt Malone, International Minerals & Chemical Corp, Atlanta.
14. Gordon Cunningham, Tennessee Corp., Atlanta, Graham Campbell, Chamberlin & Barclay, Cranbury, N. J.
15. Mr. & Mrs. W. L. Waring, Jr., Lyons Fertilizer Co., Tampa.
16. Judge Wilson, Richmond, J. E. Nunnally, Cotton Producers Assoc., Atlanta.
17. J. L. French, Virginia-Carolina Chemical Corp., Richmond, E. C. Wasson, Butler Mfg. Company, Kansas City.
18. Kim Barley, George Barley, both with Diamond R Fertilizer Co., Winter Garden, Mr. & Mrs. Chas. Daly, West Coast Fertilizer Co., Tampa.
19. Albert Spilliman, Coop. GLF Soil Building Service, Baltimore.
20. Omar Sanders, Fertilizer Industries, New York, L. Paul Campbell, Acme Fertilizer Co., Wilmington, N. C.
21. A. D. Strobhar, Southern Fertilizer & Chemical Co., Savannah, Jimmie Culpepper, Smith-Douglass Co., Inc., Norfolk.
22. George Pettit, Potash Company of America, Washington, Dick Bennett, Farm Fertilizer, Inc., Omaha.

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adaptable to your procedure. Some of the precautions which I propose are admittedly cumbersome. However, they are all based upon practical experience in investigating and defending liability claims which have arisen from the use of pesticides. If the precautions are observed, I cannot assure you that you will be immune from liability claims, but I can assure you that if and when they do arise, your attorney will sleep sounder the night before the case goes to trial.

VIRGINIA CHEMIST DISCUSSES STATE LAWS ON MIXTURES

RODNEY C. BERRY
Virginia State Chemist

I have been asked to discuss state laws and regulatory policies affecting the sale and distribution of Fertilizer-Pesticide Mixtures. Generally speaking, a fertilizer is a substance formulated for the promotion of plant growth and an agricultural pesticide is a substance formulated for the mitigation of pests which retard desired plant growth, such as insecticides or fungicides, the select destruction of undesired plant growth, such as herbicides; or other uses such as defoliants, inhibitors or bactericides.

The distribution of fertilizers is regulated by laws in 47 states and the distribution of pesticides is regulated by Federal Law and by laws in 41 states. Naturally, laws enacted by these many different legislative bodies reflect different views. The associations of both fertilizer and pesticide control officials, cooperating with manufacturers have drafted so-called model laws, helped to eliminate major differences, and accomplished considerable uniformity in labeling and enforcement procedures. Fertilizer - Pesticide Mixtures for use on lawns or ornamentals are being sold in Canada, Hawaii, Puerto Rico and in about 40 states and for use on agricultural crops in about the same area. Although the sale of these mixtures covers a rather large geographical area, the reported sale in most states is very small. The bulk of the sale to date is confined to a few Eastern and Mid-Western States; however, sales are increasing and we must determine the correct procedure for regulatory control. This is a mutual problem.

Fertilizer Laws

Laws regulating the sale of fertilizers have been in effect for many years and during much of this time, research and extensive education has been conducted by the Land Grant Colleges and the U. S. Department of Agriculture. The knowledge which agronomists and other scientific workers have made available has resulted in better balanced fertilizers and increasing higher yield in crops. Farmers are fairly well informed about fertilizers and few farmers are apt to injure themselves, their crops or their livestock through the use of these materials. Fertilizers are not highly toxic materials and laws regulating the labeling, distribution and responsibility of the manufacturer are not as strict as pesticide laws. While most fertilizer laws provide that the fertilizer shall not contain ingredients which might damage crops or soil, these laws do not provide that directions for use or warnings against misuse be included in the labeling. That is one phase of your industry you'll have to face up to—a radical change.

Pesticide Laws

Most of the laws regarding pesticides have been enacted or amended during the past ten years and during this comparatively short period much uniformity has been accomplished through the cooperative efforts of control officials, manufacturers and experiment station workers. (I am referring to pesticides, not fertilizer-pesticide mixtures.) Pesticides have been formulated to mitigate pests and have been formulated with compatible materials. The rate and correct time of application has been determined by careful experiments of entomologists and other scientific workers. The residue remaining on the crop or in the soil which might effect other crops has been carefully considered in arriving at correct directions for labeling. All of this data is considered when a pesticide is presented for registration. The control official's duty is to protect the user. Before issuing a registration certificate, the control official must carefully check the ingredient claims, the rate and time of application, the pest to be controlled, the plant or crop to which the pesticide is to be applied, directions for use and a warning to protect the user. Many of the pesticides are highly toxic and for public protection necessarily require strict regulations regarding

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Architects and Manufacturing Engineers to the fertilizer

distribution. Directions for use and warning against misuse must be given on the label.

Under most laws, the manufacturer is held responsible if the pesticide, when used as directed, **or in accordance with common recognized safe practice**, be injurious to living man or other vertebrate animal or vegetation to which it is applied, or to the person applying such pesticide. This responsibility has been upheld by the Virginia Court of Appeals and other courts. No comparative responsibility to my knowledge appears in any Fertilizer Law. Many other provisions of Pesticide Laws could be cited in contrast to Fertilizer Laws. The enactment of the Miller Bill and the establishment of tolerances on foods in my opinion has made the public more conscious of chemical residues on foods and most likely will result in more careful enforcement of pesticide laws.

Fertilizer-Pesticide Mixtures

Under the Federal Act, the pesticide is the **active** ingredient and the fertilizer is the diluent or **inactive** ingredient and such mixtures passing in interstate commerce must be registered.

I have reviewed a recent survey of regulatory procedures throughout the United States, Canada, Hawaii and Puerto Rico, and replies from control officials indicate that in states and countries having both laws, the manufacturer of these mixtures will be required to comply with the provisions of both laws, and in most instances, this includes registration under both laws.

Early in 1951, the first Fertilizer-Pesticide for use on a food crop in Virginia was offered for registration. We were quite disturbed about the possible misuse of such mixtures and the contamination of soils and crops which might occur. We adopted the policy that no Fertilizer-Pesticide Mixture for use on food crops should be registered for sale unless it had been recommended for specific use by the Virginia Experiment Station, and these are restricted for use on peanuts for the control of the Southern Corn Rootworm. So far, three grades containing aldrin or heptachlor have been approved.

In order to establish a reasonable and uniform policy in regulatory control of these mixtures, I presented a resolution to the Southern Association of Feed and Fertilizer Control Officials and in June 1951, that association unanimously adopted the following resolution:

1. In view of the long lasting effects of the misapplication of pesticides, it is recommended that fertilizer control officials of this Association not register or permit the sale or the custom mixing of fertilizers containing pesticide for field crops, unless such mixtures have been formally approved by the Officials of the Agricultural Experiment Station or other officials vested with such responsibility by Law in their State.

2. It is believed that the use of mixtures of fertilizers and pesticides is generally based on the economics of the practice and that the danger of contaminating crops or soils or both by misapplication, by inappropriate levels and methods of application is real and does not warrant the savings in labor costs.

3. Mixtures of pesticides and fertilizers which are registered for sale should be properly labeled and meet all requirements of both the fertilizer and pesticide laws of the various states.

This resolution has since been adopted by the Association of American Fertilizer Control Officials, the Association of American Pesticide Control Officials and by the Experiment Station Committee on Organization and Policy of Land Grant Colleges. The majority of the control officials have tried to follow this policy, however, we must consider the fact

1. Jimmie Culpepper, Ralph Douglass, Sid Rydell, all with Smith-Douglass Co., Norfolk.
2. Walter Sackett, and Joseph L. Prosser, both with The A. J. Sackett & Sons Co., Baltimore, Earl F. Cline, Smith Agricultural Chemical Co., Columbus.
3. Wm. R. Bone, Monsanto Chemical Co., St. Louis, Robert S. Bryant, Victor Chemical Co., Chicago.
4. Mr. & Mrs. Converse Ferrell, Georgia Fertilizer Co., Valdosta, Joe Harrell, Southwest Potash Corp., Atlanta.
5. Mr. & Mrs. M. Tegtmeyer, and daughter Fay, Synthetic Nitrogen Products, New York.
6. Arthur Smith, Olin Mathieson Chemical Corp., Baltimore, John M. Curry, County Agric. Agent, Summersville, W. Va.
7. Ralph Fraser, Northern Chemical Industries, Baltimore, T. S. L. Pope, International Fertilizers, Quebec.
8. Mr. & Mrs. Harry A. Medley, John E. Campbell, all with Plant Food Corp., Los Angeles.
9. Warren Johnson, U. S. Industrial Chemicals, N. Y., Bob Crabtree, Hercules Powder Co., Wilmington.

that many state laws permit "Buyers Mixtures" and such sales are not always subject to the same regulatory procedure applicable to open market sales. Some states have followed neither this nor any other consistent procedure.

Most agronomists are somewhat skeptical about the practical use of these mixtures. The rate and time of application, and the placement of the fertilizer rarely coincides with the most effective time and placement of the pesticides. Most entomologists prefer other means of applying pesticides, but agree that the use of these mixtures is practical under certain limited conditions.

While most fertilizer manufacturers are familiar with the regulatory provisions of the State Fertilizer Laws, I believe that few of them are fully aware of the legal responsibilities they will assume in the marketing of pesticides in the form of Fertilizer-Pesticide Mixtures.

Label claims, including "Ingredient Statement," "Directions for Use" and "Warning Statements" are extremely important as they furnish essential information to the user and often are the basis for determining the responsibility of the manufacturer. These facts are clearly stated in the opinions of the Justices of the Virginia Court of Appeals, April 20, 1953, in the case of McClanahan and others.

The use of pesticides is essential in agriculture today, I have no doubt, but I am sure everyone concerned will admit that the use of Pesticides is a controversial subject, particularly so in Fertilizer-Pesticide Mixtures. A few able scientists advocate the use of these mixtures, while other equally-qualified scientists disagree and recommend that these materials should be applied separately. The regulatory official has a very difficult job in determining the correct course in this complicated problem.

Most control officials can foresee the complications and dangers which lie ahead in the probable misuse of such materials and the difficulty of making uniform mixtures, and have, therefore, advised against their use. However, if the provisions of the law are complied with, the mixtures must be registered. Uniform procedure is more general when there is the same fertilizer and pesticide control official.

The only claim supporting the use of Fertilizer-Pesticide Mixtures which is not controversial in my opinion, is that based on the economics of the practice. I predict that the general use of these mixtures will neccessitate more laws and regulations.

Before entering this field of operation both the pesticide manufacturers and the fertilizer manufacturers should consider the complications and responsibilities which must be assumed in the marketing of these mixtures.

I believe that the buyer has a right to expect that all products offered for public sale are safe for use and are truthfully labeled. Regulatory laws quickly follow abuse of this trust. The purpose of these laws is to define the duties and responsibilities of both the control official and the manufacturer. We have a joint obligation—to merit and preserve public confidence.

MODERATOR SUMS IT ALL UP

by M. V. Bailey

With the brief history and market review opportunities set forth by Dr. Jacob, and the production, legal and control aspects so well covered by our other speakers, many of you who represent the fertilizer mixing industry may be somewhat skeptical about the practice. At best, it involves difficult and exacting factory procedures. New and highly toxic but effective pesticides are being invented, and the end is not in sight.

Insecticides are now under extensive field testing which, when applied on or with cotton seed at planting time, will protect the plants from insect infestation for a matter of weeks. The chemical is absorbed into the plants and quickly translocated to the foliage. It is not unreasonable to hope the chemists can make compounds which, when applied in this manner, will protect the plants from insects and diseases throughout the growing season. The advantages and benefits from the use of such compounds need not be delineated now, but I am sure you realize their importance to the farmer. Obviously, the application of such materials with fertilizers will be a logical step, and the farmer will expect to have the materials factory-mixed.

The handling of such pesticides in the fertilizer factory will create serious problems in industrial hygiene. Prevention of air contamination with odors much worse than those created by fish meal, meat scraps or spent acid may be very expensive, or even suggest factory relocation. The farmer must be taught how to safely use the mixtures. The question of harmful residues in the soil must be investigated, as these will vary with soil types. The possible effects on the flavor and odor of crops must get attention.

After all of these warning signals, perhaps what we now need is an enthusiastic insecticide salesman to elaborate on the advantages of such mixtures and minimize the problems and expense involved in making and selling them.

Whether you should produce these mixtures is a difficult choice to make. Some of you can still remember the plight of the carriage and buggy whip makers fifty years ago. Some of them refused to believe that motor-powered vehicles would take over. Others went into the automobile business or at least diversified their production. Those who will render the most service to their customers in this connection are those who can approach the problem not as something unpleasant, difficult and expensive which should be avoided as long as possible, but as an opportunity to produce something the consumer wants or can use to his advantage.

Up to this time no advantage has been found for fertilizer-pesticide mixtures excepting that of economy in the field operation. There are no data to prove that the mixing makes the plant nutrients in the fertilizer any more quickly available or longer lasting, or that the pesticide is made more effective, but labor is a major farm expense item and the efficient farmer is continually on the alert for savings. It may be your problem is one of simple arithmetic. Can you mix fertilizers and pesticides for a price which will give the consumer a saving in labor cost for their application?

One hopeful suggestion is that applicators may be added to the standard fertilizer broadcasters or the ones attached to planting machines, which will apply either solid or liquid pesticides along with fertilizers and at the desired location in the soil. This method has numerous advantages to the farmer, the most important of which is the flexibility it offers in changing rates and ratios of fertilizers and pesticides. Our engineers should set to work on this to find a better way of doing it.

The officers of your Association are anxious to be of any possible

1. C. C. Arledge, Virginia- Carolina Chemical Corp., Richmond, Howard Morgan, Diamond Fertilizer Co., Sandusky.
2. Warren Huff, Ashcraft-Wilkinson Co., Columbus, William B. Ward, Cornell University, Ithaca.
3. Dr. J. W. Turrentine, American Potash Inst., Washington.
4. Mr. & Mrs. W. A. Stolt, Summers Fertilizer Co., Sioux Falls, S. D.
5. Mr. & Mrs. Paul Truitt, NPFI, Washington.
6. T. E. Camp, Jr., Southwest Potash Corp., New York, Fred Woods, Gulf Fertilizer Co., Tampa.
7. Mr. & Mrs. Ralph Fraser, Northern Chemical Industries, Baltimore.
8. Hugo Riemer and M. E. Hunter, both with Nitrogen Division, Allied Chem. & Dye Corp., New York.

assistance, and any suggestions you may have for activity on the part of the technical committees will receive considered attention. The production of fertilizer-pesticide mixtures presents a real challenge and we are all sure the fertilizer industry is fully capable of meeting it in a manner which will increase the American farmer's efficiency and reflect favorably and, we hope, profitably on our industry.

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Institute to Move July 25

The National Plant Food Institute will establish itself at 1700 K Street N.W., Washington 6, D. C. July 25 and the new telephone number is DIstrict 7-0225. The former offices of both NFA and APFC will be closed and personnel, data and equipment consolidated at the new location.

Institute Merges NFA-APFC Publications

The former Plant Food Journal of APFC and National Fertilizer Review of NFA have become one publication, Plant Food Review since the creation of National Plant Food Institute. The Institute is also publishing a weekly News Report.

N. C. Warns Of Phony Fertilizer

The North Carolina Department of Agriculture has moved to head off what it termed a new and illegal business in the sale of unauthorized solutions of fertilizer, usually applied directly to lawns.

John L. Reitzel, assistant commissioner of agriculture, said he had been informed at least two North Carolina firms were engaged in the business which he describes as "selling and distributing fractional analysis fertilizer in water solution."

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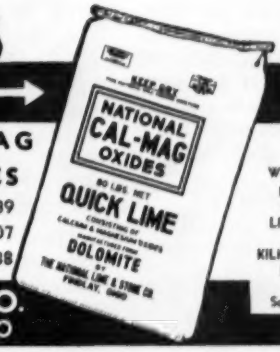

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General Offices • • • • • FINDLAY, OHIO

Safety

1. Wayne High, The Baugh & Sons Co., Baltimore.
2. George Pelton, Smith Agricultural Chemical Co., Columbus, Ohio, and Gordon Pittock, William Stone Sons, Ltd., Ingersoll, Ont., Canada.
3. A. B. Pettit, Davison Chemical Co., Baltimore, Rod Martinet, E. Rauh & Sons Co., Indianapolis, Dick Bennett, Farm Fertilizers, Inc., Omaha.
4. J. C. Kato, National Safety Council, Chicago.
5. Vernon Gornto, Smith-Douglass Co., Inc., Norfolk, Billy Creel, North Carolina Dept. of Labor, Raleigh.
6. R. G. Diserens, Phillips Chemical Co., Bartlesville, Ed Burroughs, Jr., R. S. Royster Guano Co., Norfolk, Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond.
7. Tom Clarke, GLF Soil Builders Service, Ithaca, Walter Lehle, Olin-Mathieson Chemical Co., Baltimore, Dr. C. W. Nelson, University of Chicago.
8. R. E. Kelly, Swift & Co., Chicago, John E. Smith, Spencer Chemical Co., Pittsburg, Kans., Tom Clarke, GLF Soil Bldg. Service, Ithaca.
9. J. P. Huckaby, Southern Fertilizer & Chemical Co., Roebuck, S. C., Grayson Morris, Southern States Cooperative, Richmond, George Dietz, Fertilizer Manufacturing Cooperative, Baltimore.
10. There's really no tenth picture, but there should be; Mike Ellison of Mississippi Chemical Corp., Yazoo City, Miss., disappeared as soon as the meeting broke up so we didn't get his picture.

Safety Reports

ALL AROUND THE MAP AT EXECUTIVE MEETING

Good attendance and a fast-moving program marked the mid-year Executive Committee meeting of the Fertilizer Section, National Safety Council. Held at Roanoke, Va. on June 12, the session immediately preceded opening of the preliminary convention of National Plant Food Institute at nearby White Sulphur Springs, W. Va.

General Chairman Thomas J. Clarke of G. L. F. Soil Building Service, Ithaca, N. Y., led off the committee meeting with a report of substantial progress in the major phases of the Section's activities. Pledging throughout the remainder of his term a stepped-up membership drive, he stated "we are no longer a junk type of business. We are a highly mechanized chemical industry."

"Since we have gone high class in the mechanization of all of our operations, it just appears to me that we can use the same amount of intelligence and ingenuity to reduce our frequency rate and eliminate serious accidents in our fertilizer plants.

"There is a future in this business because every life is precious, not only to the company that hires it, but to the person that has to carry it around forever. There is a future in membership. There is a future in lowering costs."

"In opening this meeting then, let me say that the past has been good, the present shows progress, and the future is unlimited in its scope."

Charles Frost, air pollution officer for the City of Roanoke and former vice president of Air Pollution Control Association, spoke briefly to the group on the activities of that association. His remarks were reinforced by A. B. Pettit of Davison Chemical, Baltimore, who cited the benefits of membership in that organization for firms in the fertilizer field.

Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, reported on the recent meeting of the 14-state Southern Fertilizer Safety conference at New Orleans.

W. C. Creel of the North Carolina

Department of Labor, Raleigh, described the progress of the fertilizer safety program in his state. The May conference attracted about 45 delegates, who learned how a three-phase plan has reduced the accident frequency rate in 70 North Carolina plants by 47%—from 18.6 in 1952 to 9.8 in 1954. A continual series of safety material has kept the plants safety-conscious, while outside aid was furnished in the form of individual inspections on five visits to each plant, plus advocation of membership in the National Safety Council.

Capitalizing on the genuine interest and enthusiasm stirred up by the success of the program, meetings are planned sectionally to bring together top management of the plants in the state—especially the smaller ones. Efforts will be made to have a safety director appointed in each plant to keep records and get together a committee, while the entire program is becoming integrated with that of National Safety Council.

In the absence of William A. Stone of Wilson & Toomer Fertilizer Co., Jacksonville, it was reported that the organization in that state is developing.

John E. Smith of Spencer Chemical Co., Pittsburg, Kansas, outlined progress of the safety association in the Central States. Fertilizer safety is tied in with the chemicals and explosives group in that area, but he told of work toward recruiting 25 or 30 members for an individual section for the industry.

Vernon Gornto of Smith-Douglass Co., Inc., Norfolk, described the meeting of the pioneer Virginia group, and revealed their plans for supervisory training in safety.

A. B. Pettit of Davison Chemical Co., Baltimore, outlined the recent gathering of approximately 90 men for the 1½-day Maryland conference, telling how Joseph Hughes of Ohio State University, pesticides chairman, remained on his feet four hours answering questions at the gathering in Baltimore.

J. P. Huckaby of Southern Fertilizer & Chemical Co., Roebuck, S. C., told of the initial meeting of that state's Fertilizer Safety organization which attracted more than two dozen men. The next meeting, he explained, will be held November 4 at Charleston where attendance will be even better.

Canada is showing continual improvement in its record accident-wise, according to Gordon Pittock of William Stone Sons, Ltd., Ingersoll, Ontario, but there is still a problem of interesting management of smaller plants in the program.

After the sectional progress reports, Tom Clarke called for reports of various committees, whose findings were outlined as follows:

Statistics and Contest: F. Wayne High, The Baugh & Sons Co., Baltimore, announced that this three-year-old effort has recorded reductions in both the second and third years.

Engineering Committee: A. B. Pettit, Davison Chemical Co., Baltimore, predicted the forthcoming report of the Scientific Committee on pesticides mixes from J. P. Hughes of Ohio State University will be outstanding. He said much progress has been made in layout of data sheets and material from the Engineering Committee itself, and this group has been organizing its comments for presentation to the Executive Committee; the data sheets and other material will be issued shortly.

Membership Committee: Vernon Gornto, Smith-Douglass Co., Norfolk, reported that since October 18, 20 new members had been recruited for National Safety Council, bringing the total for Fertilizer Section to 97 key members and 97 subsidiary. Now, he continued, all the large multi-plant fertilizer operations except one are in the Council. J. C. Kato of National Safety Council commented that the Fertilizer Section record was remarkable in that there had been no cancellations during this period, a feat equalled by only two other sections in the Council. At present, he added, 35 states are represented by at least one membership each in the Section.

Visual Aids: E. O. Burroughs, Jr. of F. S. Royster Guano Co., Norfolk, described the plan for evolving safety posters, stated that things were progressing and promised 12 new posters by October.

Research: R. G. Diserens of Phillips Chemical Co., Bartlesville, Okla., outlined how his committee has performed tasks of: studying industry problems, including personnel; doing literature research for the Executive Committee; examined problems that are new in the way they relate to the fertilizer industry; studied improvement of the mechanical guarding of equipment.

In studying the proper place and function of state labor departments, he reported that poor relations are frequently the mutual fault of the industry and the state itself; much depends, he feels, on the individual personalities of those involved, and on the effectiveness of means of communication between the state and its fertilizer plants.

As for approval of safety equipment as it applies to the fertilizer industry, he stated that the committee believes it better to disapprove certain appliances than to try to approve all the valid ones, and then to work with machinery manufacturers to try to improve these devices.

Much work has also been devoted, Mr. Diserens continued, to personnel and human factors in cause and prevention of accidents, as well as to health problems and possible impairments due to work environment. In noise level tolerance and respiratory health environment, he reminded that state health departments and insurance company field men can be helpful in suggesting improvements in old plants and in standardizing pre-employment and routine post-employment physical examinations.

Insurance and Legislative: George Pelton, Smith Agricultural Chemical Co., Columbus, Ohio, reported on the work of this committee, expressing a wish that some better basis could be established for in-

A safety record of 1,000,000 man-hours without a lost-time accident was recently achieved by the Chatham, Ont. fertilizer plant of Canadian Industries (1954) Limited. Here, Mary Nasterson of the plant office staff and veteran of 30 years service, Charles Wellington, display the million-hour plaque presented the plant by the Industrial Accident Prevention Association. The record represents eight accident-free years, believed to be one of the best among fertilizer plants in North America.

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surance rates in the higher-cost states. Some discussion followed on the pros and cons of state-operated versus private compensation programs.

Nominating: Vernon Gornto, Smith-Douglass Co., Norfolk, gave some hints regarding the thinking of his committee and asked Executive Committee suggestions for any changes they thought were in order. He emphasized that the group was seeking the best possible geographical spread in naming the 13 new members to the 39-man Executive Committee. A motion was passed to form a committee to select token awards for retiring Executive Committeemen who have performed meritorious service for the Section.

Public Relations: In the absence of J. L. Shopen of Consumers Cooperative Assn., Kansas City, Tom Clarke reported good cooperation from the trade press in publicizing the Section's activities, and good response to the 1600 newsletters issued this year.

At the close of the committee reports, Curtis A. Cox of Virginia-Carolina Chemical Corp., Richmond, presented the program for the annual meeting of the Fertilizer Section at the National Safety Congress in Chicago October 17-18. The general outline will resemble that of previous conferences, he pointed out, with sessions each afternoon.

The first day's features are planned around the "human aspect." This year will see a much-requested fertilizer safety "bull session" informally set for the morning of October 18; while this will not be shown on the official program, the time and location will be announced at the first day's session.

Dr. Charles W. Nelson of the University of Chicago ended the Executive Committee meeting with his progress report on the Fertilizer Safety motivation study. He described the methods used to obtain sincere comments for data in the study, and reported good understanding and cooperation at those plants studied thus far. Key year-round employees set the safety pattern for a plant, he concluded, and help in selection of temporary employees.

Preliminary results indicate a need to narrow the gap in communications between supervisory and worker levels. In closing, Dr. Nelson asked Executive Committeemen to fill out answer sheets to his typical management practices survey, and to obtain ten other answer sheets from supervisors in their plants to help him interpret the motivation study.

AP & C And Stauffer High On Safety List

American Potash & Chemical Corporation, of Los Angeles, received the Lammot du Pont Safety Plaque award at the annual meeting of the Manufacturing Chemists' Association at White Sulphur Springs, W. Va., named winner among companies whose employees worked more than 2,000,000 man-hours annually. The award is made to chemical companies showing the greatest improvement in plant safety over a five-year period. Stauffer Chemical Company, New York, was runner-up in the over 2,000,000 man-hours category.

The present award is in addition to eight other awards received by American Potash & Chemical Corporation this year for safety records set by the company and its various divisions.

Davison Wins Award Of Research Institute

For its use of plant committees with equal representation for management and workers, the Davison Chemical Company Division of W. R. Grace & Co. has been selected for the annual Award of Merit of the Associate Membership Division, Research Institute of America. Awards are given for practical solutions to problems in the field of human relations, company communications and manpower utilization.

The citation noted that the plant committees "give self-expression to daily plant problems, help direct management's attention to employee ideas, and act as a window through which management becomes better acquainted with employee problems as they appear to the **employee.**"

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Spencer Chemical Convenes Bankers with Farmers

Bank farm representatives from seven states exchanged views on the growing responsibilities of bank farm departments June 1-3 in a three-day program in Kansas City conducted by Spencer Chemical Company.

The farm representatives ("Bank FR's") were chosen by bank publications, with the advice of state bankers associations and agricultural colleges, to participate in the first of a series of programs. Purpose of the event—called an "FR Seminar"—was to develop information which could help banks establish or broaden a farm department.

The program included a Thursday tour of Spencer's Jayhawk Works at Pittsburg, Kans. the group flying to the works in a chartered plane in early morning. They returned in time to attend a New York Yankee-Kansas City Athletics game in Kansas City Thursday night.

Friday was devoted to a detailed discussion of farm department projects and problems. Each farm representative elaborated on the questions, "How can an FR help increase the profits of his bank?"; "What prior training and experience is best to fit a man for the FR profession?" and "What can an FR do to establish himself as a factor in his agricultural community?"

Fertilizer loans "made on the farm" and similar topics were discussed at length. There was a general consensus of opinion that in most cases farm representatives are needed to maintain good customer relationships, officers being too busy to watch farm accounts closely; that a qualified FR can increase the gross income of the farm customer; that loans are kept in better shape (through FR's) as a result of closer contact with the loan and the customer, and in general that a bank "will notice new names on the ledgers, bigger balances and a new look in the community" as a result of the efforts of a qualified farm representative.

Krause Plow To Make And Sell Liberty Applicator

The exclusive manufacturing and sales rights to the Liberty liquid fertilizer hose pump, pioneered by Liberty Manufacturing Co., Red Springs, N. C., have been acquired by Krause Plow Corp., Hutchinson, Kan. The pump was developed by the University of Tennessee Research Corporation, and patented by them. USDA engineers at Beltsville have made substantial improvements. The result is said to be a simple and inexpensive new application device for metering all types of fertilizer solutions. Krause expects through modern engineering and production facilities to further improve the device.

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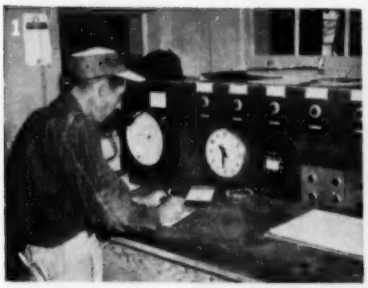
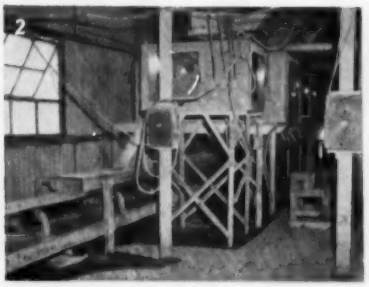
How Spencer Helped Ark-Mo Cut 12-12-12 Formula Costs 16%

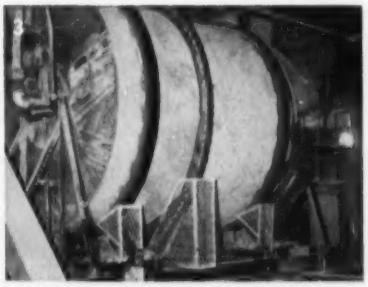
New granulation process developed jointly by Spencer and Ark-Mo lowers costs on 12-12-12 and other high nitrogen grades:



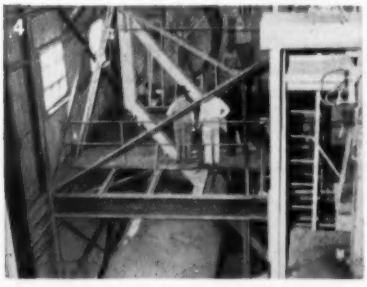
The big secret is accurate control throughout the process. At this panel the flow of various ingredients is recorded together with temperatures at various locations in the system.



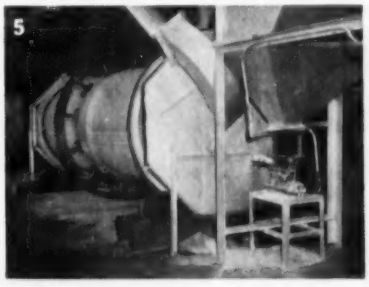
Raw materials are weighed separately by these Omega Gravametric Feeders. Conveyor belt and elevator carries materials to screens and crushers where oversized are ground to pass 10-mesh.



The liquids are added in this ammoniator-granulator, only equipment of special design in the new Ark-Mo plant. All nitrogen is derived from SPENSOL solutions, in nearly all grades.



From the ammoniator the material flows to the dryer (foreground). Then it goes to the cooler and finished product screens. Fines are collected and weighed back into system.



In this machine the high nitrogen grades are coated with diatomaceous earth on way to storage. Low nitrogen grades go direct from cooler to storage by conveyor belt.

Another example of how Spencer looks after its customers' profits:

With today's competition it's even more vital to keep your formula costs low. To develop cost-cutting information for our SPENSOL customers, we joined with the Ark-Mo Plant Food Company, Walnut Ridge, Ark., to design a new plant where latest granulation information could be put into practice on a commercial scale. The result was a substantial decrease in the formula costs of high nitrogen fertilizers. For more information, write: Technical Service Staff, Spencer Chemical Co., 530 Dwight Bldg., Kansas City 5, Missouri.

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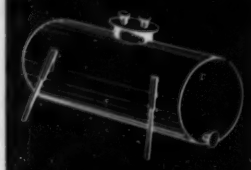

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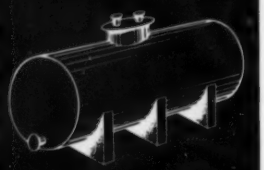

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ALABAMA

Consolidated Chemical Industries Inc. will build a large contact sulphuric acid plant at Le Moyne, according to an announcement made June 17 by G. L. Bond, president of the company. Construction will get under way at once and completion is expected by mid-1956.

The plant will cost $2,000,000 and will incorporate the latest advances in engineering design. The sulphur required will be supplied by water transportation to company docks on the Mobile River.

Consolidated presently manufactures sulphuric acid at Houston, Baytown and Fort Worth, Texas, and at Baton Rouge, Louisiana. Last month they put into operation a new spent sulphuric acid regeneration unit at their Houston works, a twin to the unit placed in operation in May at Baytown, Texas. These spent sulphric acid regeneration units are the largest ever constructed. The additional units will make Consolidated one of the nation's largest producers of sulphuric acid.

Consolidated operates 10 plants in the United States and 3 in the Argentine. 8 of the 10 American plants are located in the Southwest. In addition to sulphuric acid, Consolidated manufactures aluminum sulphate, muriatic acid, potasium sulphate, animal charcoal, animal glues and their by-products.

ARIZONA

Thunderbird Corp., according to president **Fred Shanaman**, will start construction at once on its $13,000,000 plant at Kyrene, where ammonia, urea, phosphates and sulphates will be made. The plant is due in production this coming June.

Located only 12½ miles from the 200,000 kw Salt River power plant, and in a state which early joined the ranks of anhydrous ammonia advocates, the concern will employ 125, with an annual payroll in excess of $1,500,000.

Incorporators of Thunderbird are listed as **John B. Mills, Rex G. Baker, Jr., Ronnie B. Smith, Irving A. Jennings, Riney B. Salmon** and Mr. Shanaman. The concern is incorporated for $50,000,000 in preferred stock, and 50,000 shares of no par value common. Permanent financing has been completed with **Northwestern Mutual Life** and the **Valley National Bank** of Phoenix, with the **Mellon National Trust**, is handling interim financing.

ARKANSAS

F. T. Blalock Liquid Fertilizer Co. has been formed at Jonesboro to do lawn and shrub fertilization with liquid fertilizers.

CALIFORNIA

Ammonia Chemical Corp. has obtained a permit from Merced County to build a $3,250,000 anhydrous ammonia plant in the Red Top district, where nearby gas wells will supply raw material. Headquarters are in San Francisco. **J. H. Finney** is president.

* * *

Cotarco Corporation of Denver, in announcing a carbonization plant at Walsenburg, revealed that an unnamed fertilizer concern will build a plant to make use of Cotarco by-product. Vice-president **John Gordon** made the announcement.

FLORIDA

Stauffer Chemical has completed its additional crop chemical production facilities at Tampa, according to D. J. Keating, agricultural sales director. In a 13,000 square foot addition, modern sulphur and pesticide concentrate grinding facilities have been installed. Provision has been made for enlarged warehouse space, and a new control lab and maintenance shops have made the Tampa unit "a complete operating plant capable of converting raw material into any formulation necessary to meet crop infestations in that area.

The Southeastern area agricultural sales office is located at Apopka.

IDAHO

Western Chemical Company, according to replies to local queries, is still planning activity in its phosphate holdings in Caribou County.

ILLINOIS

Headquarters of **Central Illinois Fertilizer, The Plant Food Co.** and the **Longview Ammonia Co.**, Tuscola, have all been moved to a new location just two doors west of the old one, where remodelling will provide additional space.

* * *

Schrock Fertilizer Service, Congerville, have added another new item to their line of liquid fertilizers. Liqui-Green with Leaftone is the second new item introduced by them in the past 12 months. The new product, a combination of NPK with trace and secondary elements is used with Leaftone, a chemical additive which facilitates leaf absorption and prevents burning. The product will be marketed largely through custom lawn spraying services, with a small retail size can for the home gardner. The product is being produced at the Schrock plants at Bern, Kan. as well as at Congerville.

* * *

Crop Service Co., Champaign, is making plans to build a liquid fertilizer mixing plant which will be in operation by Fall, according to manager H. J. Schultz. Capacity is planned at 100 daily tons of mixed goods, and the plant will be modern in every respect.

INDIANA

Calumet Nitrogen are under way with their anhydrous ammonia plant at Hammond, said to be the largest US plant making anhydrous from refinery by-product hydrogen. It is scheduled to be in production by May.

IOWA

Kay Dee Feed Company is in operation with their Sioux City plant, with capacity of 50 daily tons of mixed liquid fertilizer.

LOUISIANA

Sulphur from off-shore, along with other off-shore minerals, is subject of a controversy between Louisiana and the US which the Supreme Court must decide. Who owns the three league deep area; who collects the taxes? The disputed area is rated at $6,000,000,000 in taxes a year, and the US wants the three mile limit to be the Lousiana line, with the remaining 7½ miles US property.

* * *

Freeport Sulphur Company will install facilities to produce sulphur from a newly discovered salt dome deposit in the Louisiana tidelands, the company announced today.

The deposit, known as Lake Pelto, is located near its Bay Ste. Elaine mine about 60 miles southwest of New Orleans.

Beneath 6 to 8 feet of water, Lake Pelto is within a mile of the open Gulf, being separated only by a narrow island.

Prospecting operations by Freeport were begun there early this year, and drilling has progressed to the point where a decision has been reached to install facilities to mine the property, according to the company's statement issued after a meeting of the board of directors.

"This is the first of our sulphur properties which is entirely under water", the statement said. "The mining of the deposit will involve new and difficult problems not previously faced in the coastal marshlands.

"We have embarked upon a program of engineering and development to study these problems and to determine the best methods to follow for producing the sulphur."

* * *

Life-Nite Sales Company Inc., New Iberia, has been chartered with capital stock of $125,000.

MARYLAND

Plantabbs Corporation, Baltimore, have purchased from **McCormick & Co.** their Hy-Gro Soluble Plant Food and Red Arrow Insecticides, according to vice-president **David H. Fulton, Jr.**

The products will be manufactured and marketed by the newly formed **Hy-Gro Corporation,** with headquarters at 1101 Maryland Avenue, Baltimore. Mr. Fulton is president of the new corporation. Other officers are **Edward A. Hartman,** vice president; **F. Jackson Andrews,** vice president and chairman of the board; **Gordon C. Murray,** secretary; **W. James Price 4th,** treasurer.

Red Arrow Insecticides were first marketed by McCormick & Co. about 40 years ago, and the Hy-Gro Soluble Plant Food was added to the line about 10 years ago. The sale to the Hy-Gro Corporation includes all manufacturing and product name rights for both products.

In announcing the transaction, Mr. Fulton stated that marketing and promotion of the products would be combined with the current Plantabbs program and that distribution would be through wholesalers to dealers and to chain stores. Red Arrow Insecticides are distributed nationally, as are Plantabbs. The Hy-Gro products are marketed regionally, but national distribution will be completed in the near future.

MINNESOTA

Minnesota Liquid Fertilizer, Minneapolis, whose bulk distribution points were listed in our May issue, have added a Spring Valley bulk distribution plant.

MISSOURI

Monsanto has worked out and patented a combined fertilizer and soil-conditioner of water-soluble polyelectrolyte and plant foods in solution.

* * *

Missouri Fertilizer Association has announced bulk mixing plants at Elkhorn, with **Earl Barry** as manager; Rolla, with **Don J. Fitzgerald** in charge; and Lockwood, headed by **Victor E. Wardlow.**

* * *

Valley Chemical Co. Inc., Greenville, has been chartered with $200,000 capital stock.

NEW YORK

Geigy Chemical is building main offices and laboratories in Greenburgh at a cost of $3,000,000 on a 35-acre tract there. No manufacturing facilities are included. They hope to move from their present New York City location about the middle of next year.

* * *

GLF's new $800,000 plant at Big Flats got under way lately when **Fertilizer Engineering and Equipment Co.,** Green Bay, Wisc. who are general contractors, initiated the steel and concrete construction work.

NEW MEXICO

Soil Organic Service operated by **H. P. Thormodsgaard and Associates,** Ysleta, are packing guano, mined from caves in the Carlsbad National Park area and marketed under the Black Bat trademark.

NORTH DAKOTA

Summers Fertilizer are doubling their plant at Grand Forks, according to W. A. Stolt, who also manages their Sioux Falls, S. D. plant The new unit will provide 10,000 square feet of storage space.

OHIO

Diamond Alkali Company, Cleveland, has announced the formation of a new firm, **Insecticidas Diamond del Pacifico S. A. de C. V.,** to manufacture and distribute crop chemicals products in Mexico.

A group of Mexican businessmen, headed by **Alfonso Robinson Bours** of Ciudad Obregon, are also participating in the new venture, with Diamond holding the major interest.

President of the firm is **S. S. Savage,** who is also president of **Diamond Alkali Inter-American Corporation** and **Diamond Alkali International, Inc.,** Diamond's export subsidiaries.

Other officers are: **Javier Robinson Bours,** executive vice president; **Alfonso Bours,** secretary; **Arthur W. Crossley,** treasurer; **Francisco Schwarzbeck,** formerly of **Servicio Agricola, S. A.,** general manager; and **Oscar Gonzalez,** production manager.

Located at Ciudad Obregon, Sonora, Insecticidas Diamond del Pacifico S.A. de C.V. is presently blending dust for cotton and other crops in western Mexico. Future plans call for building additional plant capacity, including grinding facilities for sulfur and concentrates.

The firm will also distribute in Mexico such other agricultural chemicals as weed-killers and liquid sprays, which are handled in Central and South America by Diamond Alkali Inter-American Corporation.

* * *

Construction is progressing at Lima, Ohio site of new facilities for **Petrochemical Department, The Standard Oil Co., (Ohio).** The first unit, a 300-ton per day anhydrous ammonia plant, will be completed late September.

The next unit, scheduled for completion November 1st, is a nitric acid unit with a capacity of 180 tons per day. The urea unit, last to be in the field, is scheduled to be in operation in January, 1956. Blending, storage, and shipping facilities will be completed along with the producing unit.

The utility section of the plant will be placed in operation late in July. Laboratories and shops will be completed September 1st. Office facilities are scheduled to be ready November 1st.

* * *

The American Agricultural Chemical Company announced June 21,

the purchase of **The Hamm Company** from the estate of the late **Valdo R. McCoy.** This plant at Washington Court House, Ohio, becomes the 29th A.A.C. Co. fertilizer factory.

Starting immediately, a number of changes and improvements will be made in the factory and equipment of the newly acquired plant. When manufacturing operations are resumed, the plant will produce Agrico and AA Quality Fertilizers for the coming fall season.

For upwards of fifty years, The American Agricultural Chemical Company has served Ohio farms from factories at Cincinnati and Cleveland, and since early in 1954 from the company's new plant at Cairo, north of Lima. Acquisition of the Hamm plant will enable the company to broaden its service to farmers in south central Ohio. An office will be maintained by the A.A.C. Co. at the Washington Court House plant.

PENNSYLVANIA

Pittsburgh Coke & Chemical, Pittsburgh, has made an agreement with **Ethyl Corp.** to take over and pursue the crop chemicals program which that company had terminated. They will continue the evaluation, development and marketing of products Ethyl has been studying, especially fungicide B-622.

* * *

Du Pont's Polychemicals department, nitrogen products sales section, established a district sales office in Philadelphia July 1, to cover the Atlantic seaboard, it was announced.

TENNESSEE

International Minerals and Chemical, the only bidder, has bought the **TVA** Godwin Phosphate plant near Columbia for $635,000, will soon start a program of reactivating the plant, and will add considerable new equipment.

* * *

Knoxville Fertilizer's new Johnson City plant is in operation. At the ceremonies, president **J. W. Dean** indicated additional construction is planned.

* * *

Valley Hill Chemical Corp., newly incorporated at Jackson, will build a 15,000-ton mixing plant there on a 31 acre site. **A. G. Capps** is president; **H. V. Senter,** vice-president; **E. A. Weaver,** secretary treasurer.

TEXAS

Consolidated Chemical Industries Inc. has put into production a large sludge acid regeneration unit at its Baytown plant. A second unit at Houston is due in mid-June, making a total of five sludge decomposition units operated by Consolidated.

The new units are unprecedented both in function and capacity. They are capable of producing strong white acid from any spent sulphuric acid, regardless of hydrocarbon content.

The new Consolidated regeneration plants will primarily serve refineries in the Gulf Coast area.

Another Consolidated plant at Baton Rouge, limited to the processing of lighter spent acid, will continue its operation. It has been in operation since 1953.

* * *

The Great Southern Compost Corporation, subsidiary of the **Fertilesoil Corporation** has opened a compost plant at Texarkana, employing a process developed by **L. P. Berry, Jr.** vice president and general manager of the plant. **R. N. Archer** is president of Fertilesoil, with **A. T. Barnes** as vice-president. The Berry process is a modification of the **Beccari** method, developed in Italy a generation ago and still in use there. Mr. Berry's process is said to cut the time of composting from the 35 days of the Beccari method to about 10 days, and he is applying for a patent on his process.

* * *

Wonder-Gro Fertilizer Company, Inc. has been incorporated at San Antonio, with **G. J. Condos, William Rhame** and **L. R. Eastman** as incorporators.

UTAH

American Sulphur & Refining, Beverly Hills, Cal. is in production with its $1,000,000 sulphur refinery at Sulpburdale. Output is 99.7% pure crystalline sulphur for insecticides, and sulphur for fertilizer, 100 daily tons total.

WASHINGTON

Brea Chemicals has taken over fertilizer mixing and distribution in Southeastern Washington and Northeastern Oregon from **Simplot,** which has withdrawn from Brea aqua distribution to consolidate its efforts in development of its phosphate program. **Walt Gilbert** who has been placed in charge says the plant will manufacture applicators also.

* * *

The Wilbur-Ellis Company has moved to 2900 1st Avenue, S.W. Seattle 4.

CANADA

Canadian Industries (1954) Ltd. has announced a new plant at Millhaven, Ont. for the manufacture of anhydrous ammonia to cost $9,000,000. Completion is scheduled for late next Summer. Negotiations covering design and construction are under way with **Girdler Corporation of Canada Ltd.** The remainder of the project will be engineered by C-I-L engineers.

Capacity of the plant will be 200 tons of ammonia per day, which will make it the largest ammonia plant in eastern Canada. The plant will require a staff of approximately 100 employees and will cover 20 acres.

Coincident with the building of the ammonia plant at Millhaven will be an expansion of C-I-L facilities at Beloeil, Que., to manufacture ammonia solutions for use in agriculture. Raw material will be ammonia from the new plant.

Fuel oil is planned as the raw material for the C-I-L operation but natural gas can be used if available. Since the recovery of ammonia from coke oven operations in Toronto in the 1880's, C-I-L had been a manufacturer of the product on a small scale. This new operation substantially extends the company interest in ammonia.

The new plant will bring to Canada a patented new process involving the partial oxidation of fuel oil under pressure. This process, which uses a heavy residual oil as starting material, was recently developed and is now being incorporated in a complete plant for the first time in the United States at Searsport, Me., in a project engineered and being built by the Girdler Company, specialists in processes involved in the synthesis of ammonia.

* * *

North American Cyanamid has brought into production its nitrogen solutions plant at Port Robinson, the first of its kind in Canada. Output planned is 15,000 to 20,000 tons this year, more later.

* * *

Dow Chemical of Canada is in operation with its new 80 daily ton ammonia plant at Sarnia, Ont.

* * *

Olin Mathieson are contemplating a $9,000,000 ammonia plant at Varennes, Que., in collaboration with **Quebec Ammonia.** If built, it will be a 115 daily ton operation and be in production by Fall 1956.

BELGIUM

Societe Belge de L'Azot et des Produits Chimiques, Marly, has undertaken an expansion program which, within 2 years, should see a one-third increase in output.

INDIA

Sindri Fertilizers and Chemicals, Sindri, is to build a $13,000,000 am-

(Photo—Courtesy Soil Conservation Service, U.S.D.A.)

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monia plant with 190 daily tons output. **Ansaldo**, Genoa, and **Montecatini**, Milan, hold contracts to build it. In additon to the ammonia, the plant will also produce 225 daily tons of nitric, 400 daily tons of ammonium nitrate, and 70 daily tons of urea. Construction is due for completion in 3 years.

* * *

Nangal, Punjab, as a site for a fertilizer plant as big as **Sindri**—350,000 tons — is being given consideration by the Government which is examining the claims of several states which wish to put up new fertilizer plants. **Madras** also wishes to build at South Arcot, as part of their integrated multi-purpose lignite project. **Rajasthan** has submitted a plan for a plant at Hanumangarh, close to their extensive gypsum and lignite deposits.

JAPAN

Shin Nippon Fertilizer KK has signed a 15-year contract by which **Montecatini**, Milan, Italy, will supply technical assistance in the construction of operation of the Japanese plant which is to produce ammonia from crude oil. **Nissan Chemical** also recently signed a technical aid arrangement with Montecatini, covering urea manufacture.

KOREA

McGraw-Hydrocarbon, Inc., a joint venture of **F. H. McGraw & Co.** and **Hydrocarbon Research Inc.**, has been awarded the contract to build a $25,000,000 fertilizer plant, to be financed by the **Foreign Operations Administration**, probably at Chung-Ju. Completion is scheduled for January 1957, when the plant is slated to turn out 85,000 annual tons, nearly a third of Korea's present needs. **C. Tyler Wood, UN** economic coordinator says the project is the largest investment made since the armistice in a single factory.

MEXICO

Monsanto's sulphuric plant at Lecheria should be in production by Spring, employing their patented vanadium catalyst process. Ground has already been broken.

* * *

Nacional Quimico Farmaceutica, S. A. are accepting bids for the Mexican Government on the construction of a Northern Mexico crop chemicals plant which should produce 2000 annual tons of benzene-hexachloride and DDT, 40 daily tons of liquid chlorine.

THE OTHER SIDE OF THE DIAMMONIUM PHOSPHATE STORY

Last month we presented the TVA side of the controversial diammonium phosphate subject. At the same time, knowing his active opposition to the project, we asked Dick Bennett for the other side, which he has provided in the minutes of his statement before the Subcommittee on TVA Appropriations, extracts from which are presented here.

Since that time the Hoover Committee has recommended that TVA's research be turned over to USDA, and that their price for fertilizers include all direct and indirect costs, including the loss of taxes which would have been obtained from private enterprise.

And since that time the protests of people like Dick Bennett and other diammonium phosphate producers, together with the protests of phosphoric acid producers have registered in Congress, for the House Appropriations Committee has instructed TVA not to make more than 5,000 tons during fiscal 1956, instead of using the 40,000 ton capacity which they reported here last month—and which Dick Bennett points out would make TVA production half the total US output.

Extracts from Statement Of R. E. Bennett Before The House Subcommittee On TVA Appropriations On May 27th, 1955

My name is Richard E. Bennett. I am President of Farm Fertilizers, Inc. of Omaha, Nebraska and am also President of Bennett Chemical Company of Denver, Colorado.

Farm Fertilizers, Inc. manufactures high analysis pelleted commercial fertilizers and also manufactures superphosphate.

Bennett Chemical Company only manufactures diammonium phosphate. Diammonium phosphate is a high analysis chemical compound containing 21% nitrogen and 53% available phosphoric acid. Bennett Chemical Company completed the installation of equipment for the manufacture of diammonium phosphate in July of 1954. Our first shipments of this material were made in late August or early September of 1954.

So far as I know, diammonium phosphate is produced by one company in Michigan, one company in Illinois, two companies in Colorado and two companies in California and is now being produced by the Tennessee Valley Authority at Sheffield, Alabama.

When I heard in January of this year that the TVA was planning to go into production of diammonium phosphate on a commercial scale, and sell at a price which was ruinous to private industry, I called to the attention of the TVA that in my opinion there was no need for TVA to expand their facilities in order to manufacture this product which they had not manufactured before . . . I called to their attention that six private plants were already in production and had capacities to produce much more of this material than there was a market for. I asked for the opportunity to meet with the officials of TVA and talk this matter over with them, because I knew that if they went ahead with these plans at the prices which had been mentioned, it would mean Bennett Chemical Company would be **ruined** and would have to discontinue the production of this product and go out of business.

I met with a representative group of TVA officials from Knoxville and from Sheffield in February. I was told then by them that their decision to manufacture this product had not yet been firmly set and that their policy and prices were still to be determined.

At this meeting representatives from Colorado Fuel & Iron Company, along with my son, who manages Bennett Chemical Company and myself, brought to the attention of the TVA that the needs for diammonium phosphate were now being met by private industry.

Since this meeting in February, TVA has received protests probably running into the hundreds from congressmen, senators, fertilizer manufacturers, trade associations, the Hoover Commission, the Bureau of the Budget, Secretary of Agriculture Benson and Secretary of Commerce Weeks, protesting their entering into the manufacture of this new material. These protests have called to the attention of the TVA that this is the first time TVA has ever manufactured a fertilizer which contains both nitrogen and phosphorus. These protests have called to the attention of TVA that industry knows how to produce diammonium phosphate and that sufficient agronomic research

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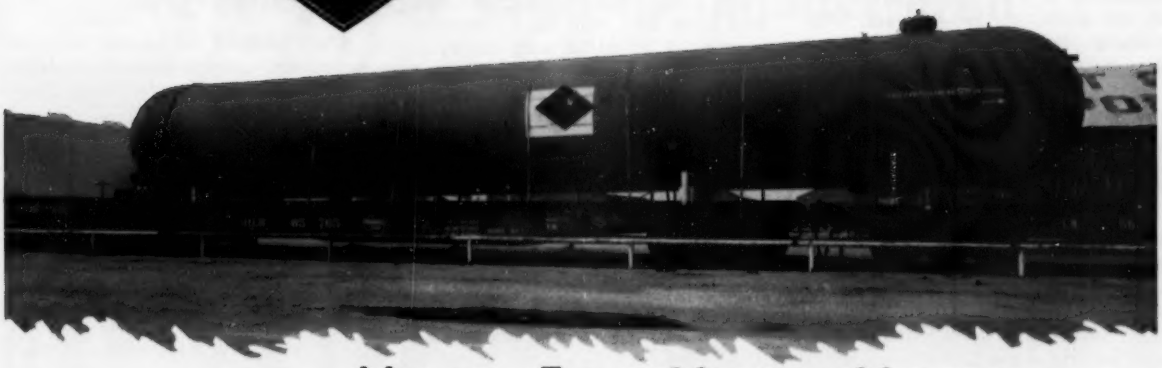

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				7,145 Gal.	60" dia. x 51' O.A.L.
150 Gal.	30" dia. x 55" O.A.L.			8,000 Gal.	72" dia. x 39'-7" O.A.L.
250 Gal.	30" dia. x 92" O.A.L.	1,000 Gal.	41" dia. x 193" O.A.L.	10,000 Gal.	72" dia. x 49' O.A.L.
				12,000 Gal.	72" dia. x 58'-1" O.A.L.
310 Gal.	37" dia. x 78" O.A.L.			18,000 Gal.	94" dia. x 51'-6" O.A.L.
500 Gal.	46" dia. x 79" O.A.L.	1,000 Gal.	46" dia. x 145" O.A.L.	30,000 Gal.	106" dia. x 68-4" O.A.L.

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has been carried out to demonstrate its usefulness on crops. These protests have said that TVA's entering into this production would discourage this development by private industry.

At a recent meeting of the Nebraska Fertilizer Institute, a resolution was unanimously passed that in producing diammonium phosphate on a commercial basis, the TVA was establishing a very serious precedent in the fertilizer industry and was hurting the industry rather than helping same.

To all of these protests, TVA has turned a deaf ear and apparently they are determined to go ahead with this project in spite of these many protests.

TVA says that their distribution is for experimental and educational purposes and that the requirements which they place on the distribution and use of their fertilizers confine them to educational and demonstration programs and avoid direct competition with commercial producers. They are very substantial producers of phosphorus and nitrogen bearing materials in direct competition with private enterprise at a price at which private enterprise cannot compete and they are doing this at the cost of the taxpayers.

TVA has now started the production of diammonium phosphate in competition with existing private plants. They state that the production of these private enterprise plants in 1955 will be about 40,000 tons, and yet they have modified their own facilities to produce a capacity of 40,000 tons annually. When this capacity is utilized, TVA will be producing 50% or more of the entire domestic diammonium phosphate production. Amounts of this magnitude hardly can be considered experimental or educational.

TVA also says that there is a potential market of "several hundred thousand tons annually." 12,000 tons of diammonium phosphate a year is approximately what private industry is now selling. The potential market is considerably more than the present market, but to mention a figure of "several hundred thousand tons yearly" is in our opinion fantastic.

Turf and Pasture Notes

Grass—just plain grass—may be the most important crop the American farmer can grow at this time.

Further, American farmers who in recent years have broken all records for production of corn, wheat, cotton, and other staples, may be found boasting of the bumper crop of grass of 1955, says Prof. Milton E. Parker, director of the food engineering department at Illinois Institute of Technology, Chicago.

Expectation that an unprecedented number of acres of farm land will be put into grass stems from changes in the government price-support program, which, this year, will extend controls, both directly and indirectly, to the farmer's "idle" acres.

* * *

More than twice as many golf courses were opened for play in the U. S. in 1954 than in the previous year, according to the report of the National Golf Foundation, presented at the annual meeting at the Yale Club in New York City. The report stated that 126 new courses were opened in 1954, compared with 52 in 1953.

* * *

An extension service report indicates that farmers don't have a complete corner on the use of commercial fertilizers.

The report estimates that about two to three per cent of total fertilizer production from June, 1953, to July, 1954, was used on golf courses, and city lawns and gardens.

The extension service predicts that this area of use will increase quickly as more and more city dwellers become aware of the results.

* * *

Fertilized pasture and rangeland can produce more than twice the net cash income from beef and other meat animals than is produced on unfertilized land, according to the California Fertilizer Association.

In one of several range fertilizer demonstrations, still in progress in California, a fertilized field in San Mateo County produced a net cash gain of $42.56 per acre during the first year of fertilization with 400 pounds per acre of 16-20-0. The net weight gain per acre from this field was 295.4 pounds.

The Association says that it does pay to fertilize range and pasture crop lands, and suggests that livestock and dairy producers can obtain reliable information on the proper fertilizer materials and rates of application from their local fertilizer supplier.

Plenty of seed but too little lime and fertilizer sums up the "poor luck" many farmers have in establishing a good pasture, according to Dr. David F. Beard, forage-crops specialist of the U. S. Department of Agriculture.

Dr. Beard cites nearly a score of common reasons for poor stands and failures—including planting seed too deep or too shallow, lack of firmness of seed bed, use of poor quality or unadapted seed, and competition by weeds or grain companion crops—but believes that lack of plant nutrients is a major cause.

* * *

Cultivation of the legume vetch as a pasture crop—important to livestock men in many parts of the country—is discussed in a new U. S. Department of Agriculture publication, "Vetch Culture and Uses" (Farmers' Bulletin No. 1740).

In addition to the research-proven pasture information, the bulletin includes a complete description of areas where vetch will prosper, varieties to be grown, seeding and fertilization recommendations, how to grow vetch for green manure, hay, or seed, and how to control insects and diseases that attack the crop. This new publication is a revision of an earlier USDA bulletin by the same title.

* * *

A new turf pest from Europe is spreading in New York State. Known as the European chafer, it is causing serious damage to lawns, golf courses, parks, cemeteries, and pastures where it has become established.

The most effective control at present is aimed at the grubs. Soil treatment with DDT, chlordane, and other materials show much promise.

OBITUARIES

Howard R. Huston, 62, recently retired American Cyanamid vice-president, and former League of Nations official, died June 8 at his summer home, Truro, Mass.

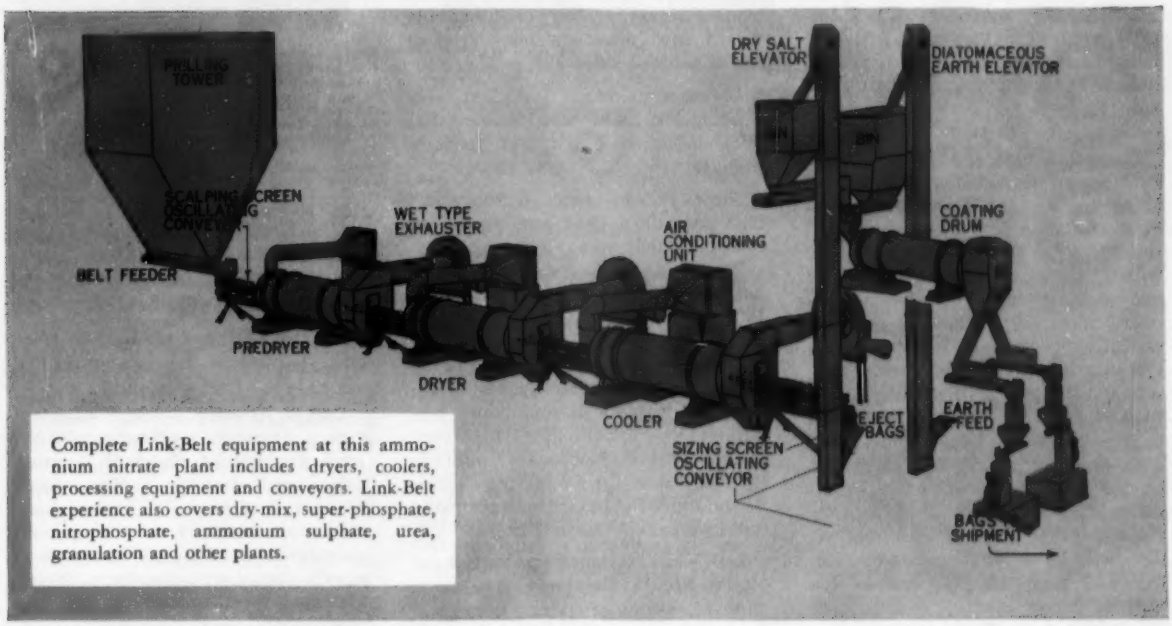
George H. Kaelin, 51, vice president of the Long Island Produce and Fertilizer Corporation, Riverhead, L. I., New York died June 2 at his home in Southhold, L. I.

David Burnett Scott, for 18 years western sales manager for American Potash & Chemical Corporation until his retirement in 1952, died of a heart attack on June 20 at his home in Altandena, Calif., a suburb of Los Angeles.

Clarence D. Shallenberger, 73, president of the Shreveport Fertilizer Works, Shreveport, La., died June 5 after a brief illness. He was a director of NFA.

Why Cooperative Farm Chemicals selected LINK-BELT

to completely equip its fertilizer plant



Complete Link-Belt equipment at this ammonium nitrate plant includes dryers, coolers, processing equipment and conveyors. Link-Belt experience also covers dry-mix, super-phosphate, nitrophosphate, ammonium sulphate, urea, granulation and other plants.

Improved methods and Link-Belt equipment assure better fertilizer at lower cost

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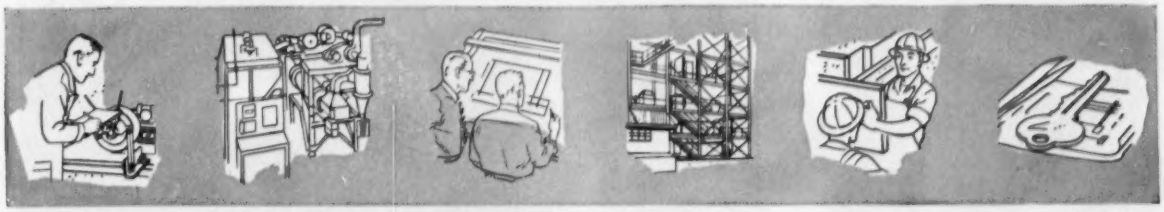

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PERSONALS

W. B. Porterfield has resigned as assistant sales manager of **US Potash** to become vice-president and salesmanager of newly formed **National Potash** Company, effective July 31.

* * *

Executive vice president **William P. Drake** succeeded **George B. Beitzel** as president of the **Pennsylvania Salt Manufacturing Company** on July 1, the latter has announced. Mr. Beitzel will continue his association with the company as a member of its board and in addition, will serve as chairman of the board of the **Pennsalt International Corporation,** a subsidiary. He joined the company in 1930 as a product sales manager and became its chief executive in 1949.

At 42 years of age, Mr. Drake will be the youngest president in Pennsalt's 105-year history, and with 21 years' service prior to assuming office, will have longer company experience than all but one of his thirteen predecessors.

* * *

At the commencement of the **University of Massachusetts, Charles M. Powell,** class of 1927, president of **The American Agricultural Chemical Company,** New York, received the honorary degree of doctor of laws, for service in the interest of conservation.

* * *

The Raymond Bag Company of Middletown, Ohio, announced the following executive appointments: **W. F. Lawrence,** Chairman of the Board. Mr. Lawrence has served as the President since 1930.

Clarence L. Mers, President, succeeding Mr. Lawrence. Mr. Mers has been vice-president and general manager since January, 1952.

James H. Lawrence, secretary and treasurer since 1948, was appointed vice president and secretary.

Wm. G. Shaw, Treasurer. Mr Shaw has served as Comptroller since May, 1952.

* * *

Two advancements among leading personnel of **The McCloskey Company** of Pittsburgh, engineers and builders, were announced by President **Robert F. McCloskey,** publications and newspapers for the recently announced standard prefabricated building called "Design 12."

J. B. Kelly, former president of the **Mellon-Stuart Company** has been named executive vice president. Prior to his association with Mellon-Stuart, Mr. Kelly was with the **George A. Fuller Company** and **Thompson Starrett.** He has been with The McCloskey Company since 1948. **Elmer R. Hicks,** chief engineer, was elected vice president — engineering. Mr. Hicks who joined the McCloskey organization in 1947 was formerly associated with the **Blaw Knox Company.**

* * *

Amos Bradley Miner was re-elected president and chairman of the board of the **National Lime Association** at the association's recent annual meeting in Hot Springs, Va. Mr. Miner is general sales manager of the industrial division of **National Gypsum Company.**

His re-election marks his third term as head of the association.

* * *

Earl O. Heverly, formerly assistant export manager, has been named export manager of **National Gypsum Company,** Buffalo, N. Y. He succeeds **William R. Croscup,** who has been appointed assistant to the general manager of National Gypsum Company's Canadian subsidiary, **Wesco Waterpaints (Canada) Ltd.,** with headquarters in Montreal.

Effective July 1, National Gypsum Company's export department transferred from New York to Buffalo in a move to coordinate more efficiently the firm's general and export sales activities. In Buffalo, the export department will be under the direction of **Amos B. Miner,** general sales manager of the industrial division.

* * *

William U. Brown and **John D. Odle** have joined the staff of the research and development division, **Davison Chemical Company** Divi-

W. E. Shelburne, of Atlanta, executive vice president for the past five years, who has been elected president of the Armour Fertilizer Works, Inc., and vice president of Armour & Company, succeeded John E. Sanford, president for 23 years, who recently announced his retirement. Mr. Shelburne became associated with Armour Fertilizer, 25 years ago.

William Lee Guithues as sales representative for the St. Louis office has been announced by Bradley & Baker, New York City.

He will cover the West North Central territory, was formerly associated with the Merchants' Exchange in St. Louis as assistant to the Secretary, and as a research chemist with Darling & Co.

A. P. Gates, left, who has been named assistant to Cecil Arledge, V-C vice-president, succeeding E. Y. Bass, retired after 45 years of V-C service. Right, R. Andrew Jenkins, appointed manager of V-C's Baltimore Sales Office. Robert G. Kreiling Jr. moved to Richmond, general sales department. Promoted to assistant managers: J. S. Crosby, Baltimore; G. F. Fienniken, E. St. Louis; A. T. Montgomery, Birmingham.

Spencer Chemical Company has announced two appointments in top sales management and the reorganization of its sales division into seven departments. These changes were made necessary by the rapid growth of the sales group and expansion into new fields.

H. R. Dinges, formerly assistant general sales manager, has been named general sales manager, and H. E. Bingham, who was acting director of product sales, has been named general manager of sales service. Mr. Bingham will head the activities of four departments—Sales Development, Agricultural Chemicals; Sales Development, Industrial Chemicals; Traffic and Advertising. Both men will report directly to J. E. Culpepper, vice-president in charge of sales. Mr. Dinges joined Spencer in 1947. Mr. Bingham joined them in July, 1946.

sion of W. R. Grace & Co. They have been assigned to work in the research engineering department at the Curtis Bay (Baltimore) plant.

* * *

David N. Hauseman, formerly a brigadier general in the Army's Ordnance Department and now a **Davison** vice-president was awarded the Jones Medal by the Philadelphia Post, American Ordnance Association, and elected a director of the Post, at the annual meeting.

* * *

Alan W. Bennett has joined the **Davison Chemical Company, Ltd.,** and has opened an office at 199 Bay Street, Toronto, to direct sales in Canada of Davison petroleum cracking catalysts, it was announced by D. N. Hauseman, vice-president of the company, as well as of Davison Chemical Company Division of W. R. Grace & Co., which has headquarters in Baltimore.

Opening of the new sales office follows announcement of the $6,000,000 plant for production of synthetic fluid petroleum cracking catalysts which Davison is building at Valleyfield, near Montreal.

* * *

C. W. Ingham who covers the Ohio territory for the Multiwall Bag Division, **Albemarle Paper Manufacturing Co.,** now is also covering the Michigan territory. His office is at 81 State Street, Columbus, Ohio.

Dr. M. F. Gribbins, district manager in Chicago for the last two years, has been appointed manager of the new Philadelphia office. His place in Chicago will be taken by **H. Gordon Bethards,** formerly a salesman for another polychemicals sales section.

Field representatives to be connected with the new Philadelphia office are: **John Spicer, Jr.,** Goldsboro, N. C.; **R. E. Burke,** Winter Park, Fla.; **Sidney Taylor,** transferred from Minneapolis, who will work out of Philadelphia; and **George F. Stewart,** who will cover the New York and New England area. He will probably be located near Albany, N. Y.

Mr. Stewart is replacing **N. A. Hite** who is moving to the Mid-West and will cover Ohio, Kentucky and Tennessee reporting to the Chicago office.

The Chicago district sales force has been increased to five by the assignment of **Jesse F. Taggart** to cover Illinois and Indiana. The San Francisco district sales office, under **M. N. Crady,** covers the area west of the Rocky Mountains.

* * *

The Pacific Coast Borax Co., Division of Borax Consolidated, Limited is acting as host to **B. L. Winter** of Sydney, Australia. Mr. Winter, who will be Borax Consolidated's technical field representative in Australia, is traveling throughout the U. S. and Canada to become familiar with the Company's work.

* * *

Neil F. McCann, agricultural advisor to the **British Embassy** in Washington, D. C., made a four-day tour of the facilities of the **Maine Agricultural Experiment Station**

Harold R. Krueger has joined the sales Staff of Stedman Foundry and Machine Co., Inc. as sales engineer for Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Ohio, Oklahoma, Tennessee, Texas, West Virginia and Mexico. He comes to the Stedman organization from The Snyder Chemical Company of Topeka, Kans., and was previously associated with the Phillips Petroleum Co. in Bartlesville, Okla., and International Minerals and Chemical Corp. in Chicago. He will make his headquarters in Stedman's home office in Aurora, Ind., and his residence in Cincinnati, Ohio.

Michel J. McDonald who has joined Albemarle Paper Manufacturing Company, multiwall bag sales force will make his headquarters in Chicago. He will represent them in Illinois and Wisconsin, covering the territory formerly handled by Dirk D. Young, who now handles the Iowa-Nebraska territory for Albemarle.

Lloyd H. Finke has been promoted to Chicago district sales manager for Arkell & Smiths, was announced by Roy E. Jury, western divisional sales manager. Mr. Finke has been associated with Arkell & Smiths for 16 years. Doug Young will assist him in the Chicago office.

Fulton Bag & Cotton Mills announce the appointment of William Roy Blackburn and Alvie Martin Strickland as sales representatives in the Texas area.

Fulton's Dallas branch is under the management of T. R. Berry and is located at 4301 So. Fitzhugh at Gaisford, Dallas, Texas.

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AMMONIUM NITRATE LIMESTONE

20.5% NITROGEN

2 FERTILIZERS IN 1

Contains 10.25% quick-acting *nitrate* nitrogen.
Contains 10.25% longer-lasting *ammonia* nitrogen.

GREEN PELLETS READY TO USE

Sized for flow and ease of application in broadcasting, top dressing, side dressing, and irrigation. Nonacid-forming.

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At low cost, Calmonite furnishes Nitrogen in the 2 forms needed by all plants — for rapid, early vigorous growth and sustained development.

SUPPLIES CALCIUM, TOO

Contains 35% to 40% calcium carbonate, secondary plant-food essential to soil productivity and good crop yields.

NOW AVAILABLE, F.O.B.

Regular Atlantic and Gulf ports, in even-weight, 6-ply paper bags with 2 bituminous liners.

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208 South LaSalle St., Chicago, Ill.
Savannah Bank Bldg., Savannah, Ga.
501 Jackson St., Tampa, Fla.
55 Marietta St., Atlanta, Ga.

June 15-18. Mr. McCann serves as a liaison expert in the agricultural sciences.

* * *

Walter A. Barz has been appointed purchasing manager of the **Calumet Division, Calumet & Hecla, Inc.,** succeeding **L. H. Donald** who retired June 1, after 40 years of service. Mr. Barz was previously purchasing agent for the Calumet division.

* * *

Dan J. Keating, director of agricultural chemical sales, **Stauffer Chemical Company** has announced the appointment of Messrs. **R. F. Chenik, J. H. Knowlan** and **W. E. Hoskinson** as sales representatives in the Midwestern area, Mr. Chenik has been with Stauffer in the Texas area, and Messrs. Knowland and Hoskinson are recent Texas A. & M. College graduates. All will be under the direction of **Porter L. Williams** of Stauffer's Chicago office.

* * *

The retirement of **Dr. Robert W. Trullinger** as assistant administrator for experiment stations, agricultural research service, was announced by **Dr. Byron T. Shaw,** research administrator of the USDA. **Dr. E. C. Elting,** deputy to Dr. Trullinger, is designated acting assistant administrator.

* * *

The Distinguished Service Award has been given to **Dr. George W. Peace,** head of the chemistry section of the technical development branch of the U. S. Public Health Service Communicable Disease Center, Savannah, Georgia, for developing a new insecticides, DDVP.

Dr. Peace has been with the Public Health Service since 1951 and has spent the time since in Savannah. He was formerly of the Cornell University faculty. He has received a number of medals and awards for his contribution to chemical science.

* * *

Willard M. Fifield became provost for agriculture at the **University of Florida** June 1, succeeding **Dr. J. Wayne Reitz,** who was made president of the University.

Mr. Fifield has been director of the Agricultural Experiment Station since March 1, 1950, and was assistant director from July 1, 1941.

* * *

Appointment of **Dr. Edward L. Chandler** to the techcal staff of **Diamond Alkali Company's** Chlorinated Products Division was announced recently by **Loren P. Scoville,** general manager of the division.

Dr. Chandler will be concerned chiefly with development of new agricultural chemicals as well as technical service on Diamond's present line of insecticides, herbicides and fungicides.

With headquarters at the company's research center at Painesville, Dr. Chandler will report to **Dr. L. Gordon Uffer,** technical service manager of the agricultural chemicals Department.

* * *

Broadening its sales and service activities, **Diamond Alkali Company** has added two representatives to its southeastern sales staff to serve customers in Florida and southern Georgia, according to an announcement made by **R. B. Perry,** Memphis branch sales manager.

Appointees are **Robert M. Hopkins,** assigned to central and southern Florida, and **Richard J. Jones,** who will cover northern Florida and southern Georgia. Mr. Hopkins makes his headquarters in Lakeland at 719 Louise Drive, while Mr. Jones is located in Jacksonville at 2805 Southside Blvd.

At the same time, Mr. Perry announced that **Charles P. Egolf,** who has represented Diamond in Florida since August, 1953, has been transferred to Memphis to take over sales responsibilities relinquished by **Martin F.**

Wilkerson, recently promoted to manager of the company's branch office at Houston, Texas.

* * *

Appointment of **George S. Cripps** as manager of agricultural development in the chemical division of **Climax Molybdenum Company** was announced by **Dr. Charles H. Kline,** manager of the division. In his new position, he will develop applications of molybdenum in agriculture. Mr. Cripps has been with **Merck & Company** in the marketing department.

* * *

Jim Roe, managing editor of **Successful Farming,** is joining the Agricultural Department of the E. H. Brown Advertising Agency of Chicago on July 1. Mr. Roe has been on the editorial staff of Successful Farming for nine years and managing editor of that well-known farm publication since May 1950.

* * *

Robert D. Hill has been elected vice president and controller of **Freeport Sulphur Company,** succeeding **Richard C. Wells** who resigned as controller of Freeport to become president of **National Potash Company.**

* * *

George E. Ritchey, agronomist in charge of the Suwannee Valley Experiment Station, Florida since it was established five years ago, retired June 30 to close a career of agriculture in the United States, China and the Philippine Islands.

In Gainesville, University of Florida Provost for Agriculture **Williard M. Fifield** announced that **H. W. Lundy,** presently agronomist at the Florida Experiment Station at Jay, has succeeded Mr. Ritchey. He will be associate agronomist in charge of this branch.

Mr. Ritchey will have the title agronomist emeritus.

INSTITUTE OF MAKERS OF EXPLOSIVES
250 EAST 43RD STREET
NEW YORK 17, N. Y.

June 24, 1955

Editor
Commercial Fertilizer

Sir:

In the April 1955 issue of your magazine there was published an article entitled "Safe Blasting Practices" by Alton L. Foster of the International Mineral and Chemical Corporation.

Wish to advise that members of this Institute disagree with certain statements by Mr. Foster in his article. While we are very glad to see any article published that promotes safe blasting practices, it has been our experience that any statements which are printed that are not in agreement with the facts are likely to cause difficulties for those who read them and are guided by them. Therefore, we wish to advise you and Mr. Foster, to whom we shall direct a copy of this letter, as follows:

All nitroglycerine dynamites of which we know as made at this time have absorbent ingredients that are not inert but are consumed in the explosion. The strength markings for straight nitroglycerine dynamites only denote the percentage of nitroglycerine in the formula. This does not apply to grades other than the straight nitroglycerine dynamites.

As to burning dynamite, there is always the possibility of an explosion. Insofar as we know, it is impossible to define the exact conditions that cause a burning dynamite to detonate. Therefore, we recommend that all burning shall be done with the thought in mind that detonation might take place.

Modern dynamites do not freeze at 42° to 46°F. Ethylene glycol (such as is used in radiator anti-freeze solutions) is nitrated with the glycerine and with this mixture dynamites can be made that may be used at sub-zero temperatures with no fear of freezing.

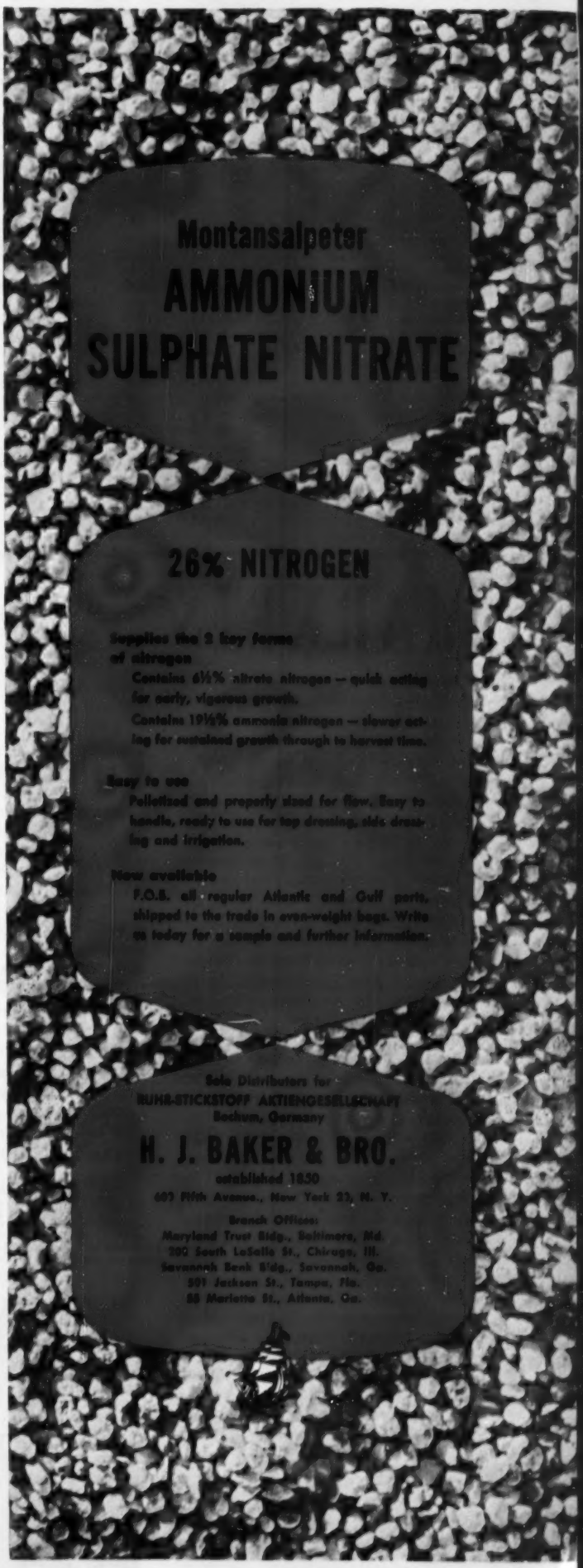
It is customary to place magazine warning signs not on the magazine but in such a position that someone shooting through the sign will not hit the magazine. Experience has shown the wisdom of this precaution.

We do not favor burying unused or unexploded electric blasting caps. They should be destroyed by detonating them.

For your information, we are sending to you and Mr. Foster, complimentary copies of our pamphlet "Safety in the Handling and Use of Explosives."

Cordially yours,

(Signed)
D. M. McFarland, Chairman
Technical Committee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SULPHATE NITRATE
26% NITROGEN
Supplies the 2 key forms of nitrogen
Contains 6½% nitrate nitrogen — quick acting for early, vigorous growth.
Contains 19½% ammonia nitrogen — slower acting for sustained growth through to harvest time.
Easy to use
Pelletized and properly sized for flow. Easy to handle, ready to use for top dressing, side dressing and irrigation.
Now available
F.O.B. all regular Atlantic and Gulf ports, shipped to the trade in even-weight bags. Write us today for a sample and further information.
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CF Staff—Compiled TONNAGE REPORTS

FERTILIZER TONNAGE REPORTS (in equivalent short tons)
Compiled by COMMERCIAL FERTILIZER Staff

State	May 1955	May 1954	April 1955	Jan.-Feb.-Mar. Quarter 1955	Jan.-Feb.-Mar. Quarter 1954	July thru December 1954	July thru December 1953	Year 1953-54
Alabama	112,559	89,558	244,382	433,542	498,391	267,041	147,702	1,087,763
Arkansas	42,602	30,062	72,578	134,588	166,326	59,887	52,438	366,225
Georgia	226,707	262,764	377,103	328,956	385,809	225,083	218,027	1,361,254
Louisiana	33,281	25,253	55,314	123,971	140,513	67,832	84,706	316,757
Missouri	84,582	91,951	102,326	189,351	273,137	268,257	256,427	756,457
N. Carolina	216,217	168,097	451,785	123,971	140,513	67,832	84,706	316,757
Oklahoma	9,008	11,777	13,913	35,770	41,182	58,406	71,558	144,367
S. Carolina	75,096	40,880	156,388	521,731	591,731	132,604	183,919	939,678
Tennessee	104,721	160,585	88,416	63,463	83,633	167,383	107,544	523,300
Texas	60,376	61,080	63,947	214,995	205,622	212,885	186,097	562,530
California	(reports submitted quarterly)			283,155	214,105	318,270	317,270	830,327
Virginia	(reports submitted quarterly)			287,367	305,316	159,185	160,715	780,931
Indiana	(reports submitted semi-annually)					285,673	283,987	1,180,091
Kentucky	(reports submitted semi-annually)					91,386	88,905	577,905
New Jersey	(reports submitted semi-annually)					53,830	57,928	289,614
Washington	(reports submitted semi-annually)					58,162[1]	*	*
TOTAL	965,149	942,007	1,626,152	3,442,486	3,769,438	2,632,227	2,474,080	11,532,795

.....(not yet reported) * Not compiled [1] Omitted from column total to allow comparison.

MARKETS

ORGANICS: The market on fertilizer organics continues strong with producers in heavily sold positions. Leather Nitrogenous has been sold for the new season at prices of $4.10 to $5.10 per unit of Ammonia f.o.b. production point.

CASTOR POMACE: Producers continue in a sold up position at the $37.50 price, in bags, FOB Eastern production points. No offerings for September forward have been re-reported and it is a question as to how much will be available for the new season. Castor from the Texas/Oklahoma area is expected to be very little and in most probability none at all for the new season.

DRIED BLOOD: Due to weakness in the feed market, Dried Ground Blood is being purchased in greater quantities by the fertilizer market. Chicago market is around $5.00 per unit of Ammonia, unground, in bags. New York market is about the same.

POTASH: The domestic prices on Muriate have settled down to a contract basis of 36¢ per unit carlots, bulk, f.o.b. New Mexico shipping points. Imported Potash is established for the coming season at 57½¢ per unit K20 on Muriate exvessel Atlantic ports. Exvessel price on Sulphate of Potash is 90¢ per unit of K20 in bulk. Manufacturers are booking contracts in good volume.

GROUND COTTON BUR ASH: Movement of this source of Potash, primarily in the form of carbonate of potash, continues steady and supplies adequate to meet the demand. Current analysis varies from 38% to 41% K20 allowing for the material to deliver at approximately the same cost as domestic Sulphate of Potash.

PHOSPHATE ROCK: The majority of the Phosphate Rock mines in Florida are shut down pending agreement between management and the unions regarding labor contracts. Superphosphate manufacturers for a month or so prior to expiration of labor contracts in the mines, in many cases, built inventories prior to the shut down. Prices remain firm and unchanged.

SUPERPHOSPHATE: Supplies of both Triple and Normal Superphosphate are in comfortable position and prices unchanged.

AMMONIUM NITRATE: Prices for the new season are unchanged for the most part compared with the present season's basis. Demand is seasonal.

NITRATE OF SODA: Demand continues seasonal and prices unchanged.

GENERAL: Late rains in the Southeast and in other areas helped movement of fertilizers during this season which was plagued for the most part by too little moisture. Fertilizer manufacturers are now booking raw materials for the new season with no expected shortages except possibly on organic ammoniates.

GA PFES Visiting Prize Pastures

Members of the Georgia Plant Food Educational Society have this month been visiting some of the farms which have won prizes in their three years of Grazing System Contests, and holding meetings at which irrigation, fertilization and general farm practices have been discussed in terms of the winning farms.

Blaw-Knox Bulletin Lists Complete Services

Complete engineering and construction services available through the Chemical Plants Division of the Blaw-Knox Company, Pittsburgh, are explained in new bulletin, No. 2505, just issued. The Bulletin, which is available upon request, outlines Chemical Plants Division services from preliminary surveys to initial operation of process plants.

Link-Belt Describes New Overhead Conveyor Trolley

A new line of ball bearing trolleys for overhead conveyors is described in 20-page Book published by Link-Belt Company. The new trolleys are rugged and simple in design and are engineered to assure rolling contact with the track at all times. Book No. 2536 includes description and dimension data on the entire line, application data, and description of the commonly used attachments. For your copy, write to Link-Belt Company, Dept., PR, 307 North Michigan Avenue, Chicago 1, Illinois.

Winding up a three-months tour of United States experiment stations, equipment plants, feed plants and public utilities, a group of five agricultural specialists from Turkey were recent guests of Olin Mathieson Chemical Corporation in Baltimore. Earlier in their tour the five visited Olin Mathieson's Ammo-Phos plant at Pasadena, Texas, as part of their study of fertilizer manufacture and distribution. Shown with the Turkish specialists here is Dr. Arthur M. Smith, Olin Mathieson chief agriculturist (third from left).

Fulton will get bags to you *FAST!*

Save time—avoid costly delays.

Call *Fulton* for immediate printing and shipment of bags from any one of these plants: Atlanta · Dallas · Denver · Kansas City · Los Angeles · Minneapolis · New Orleans · St. Louis · Savannah

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NEW YORK • OKLAHOMA CITY • PHOENIX • ST. LOUIS • SAN FRANCISCO • SAVANNAH • WINTER HAVEN

INDUSTRY CALENDAR

Date	Organization	Place	City
July 14-15	Southwest Grade Hearings	Buccaneer Hotel	Galveston, Texas
Aug. 14-19	Agronomy, Soil Science	Univ. of Calif.	Davis, Cal.
Sept. 7-9	Nat'l Ag. Chem. Assn.	Essex & Sussex	Spring Lake, N. J.
Oct. 17-18	Fertilizer Safety Section	La Salle Hotel	Chicago, Ill.
Oct. 27	Middle West Soil	Sherman Hotel	Chicago, Ill.
Nov. 2-3	Pacific N.W. Plant Food	Pilot Butte Inn	Bend, Oregon
Nov. 7-8	California Fertilizer Assn.	Mark Hopkins Hotel	San Francisco, Cal.
Dec. 5-7	Ag. Ammonia Institute		Kansas City, Mo.
	1956		
Jan. 4-6	Weed Society of America	New York Hotel	New York, N. Y.
Feb. 15-17	Western Weed Control Conf.	Univ. of Calif.	Davis, Calif.

MISSOURI SOIL AND NUTRITION MEET

The annual meeting of the Soil Fertility and Plant Nutrition Council of Missouri was held at the University of Missouri, June 2nd. Dr. George Smith, O. T. Coleman and John Falloon of the Soils Department of the College of Agriculture conducted a tour of the University's South Farm for the group and discussed results secured from the research and demonstration program being conducted by the college.

Dr. W. A. Albrecht discussed with the group the results being obtained on Sanborn Field.

Following the luncheon at the Student Union, the annual business meeting of the council was held, with Francis Best, Council President presiding.

The following officers were elected to serve the coming year:

President, Henry K. Lange, Lange Brothers, St. Louis, Missouri; Vice President, Perry Onstot, Davison Chemical Co., Joplin, Missouri; Secretary-Treasurer, George La Rock, Olin Mathieson Chem. Corp., Columbia, Mo.

Nine members of the Board of Directors were elected as follows:

William Mainard, Farm Bureau, Montgomery City, Missouri; L. L. Jacquier, Phillips Petroleum Co., Kansas City, Missouri; George La Rock, Olin Mathieson Chem. Corp., Columbia, Missouri; R. G. Graham, Virginia-Carolina Co., Knob Lick, Missouri; Harry B. Turpin, King City, Missouri; G. W. Houx, Thompson Phosphate, Kansas City, Missouri; Henry K. Lange, Lange Brothers, St. Louis, Missouri; Francis Best, Spencer Chemical Company, Kansas City, Missouri; Perry Onstot, Davison Chemical Company, Joplin, Missouri.

Dr. W. A. Albrecht and John Falloon will also serve as Honorary Directors of the Council.

One of the projects which the Council is sponsoring in Missouri is a series of improved pasture demonstrations. Emery Thompson of Adair County, one of the cooperating farmers, spoke to the group in regard to the demonstration pasture which has been developed on his farm. Gaylon Fanning, County Agent of Adair County, outlined the program which was used on the Thompson farm and John Falloon, Soils Specialist of the College of Agriculture, pointed out that there is much that can be accomplished in developing better pasture programs throughout the State. Jack Rotramel of the Macon County Soil Service, one of the cooperating dealers in the pasture demonstration, spoke on the value of pasture demonstrations to farmers.

Dr. W. A. Albrecht addresed the group on the subject of "Looking Ahead." Dr. Albrecht pointed out the various important aspects which an improved soil fertility program can contribute to better farming throughout the State.

The Soil Fertility and Plant Nutrition Council of Missouri is a non-profit organization, which was organized last year for the purpose of promoting, encouraging and assisting in a program of increasing soil productivity and better farming practices pertaining to soil fertility and plant nutrition.

SOUTH CAROLINA FERTILIZER GROUP

Some 300 people including fertilizer manufacturers, dealers, and salesmen were on hand for the annual South Carolina fertilizer convention held at the Sandhill Branch Experiment Station, June 2.

The day's festivities included tours which made stops at some 13 or 14 principal research projects located on the experiment station farm. They heard discussions about peach production, effects of rates and time for applying potash, sources of nitrogen and phosphorous, rates of applying fertilizer for maximum yields, insecticide residues, sources of minor elements in cotton production, lawn grasses, and fertilizer treatments for alfalfa. Additional discussions included information about the new nonshattering sesame variety which has just been released by the S. C. Experiment Station; two outstanding Bermuda grasses, Coastal and Suwannee; and results from irrigated and unirrigated plots of cotton, tobacco, and other principal crops.

The group visited the new livestock diagnostic and research laboratory which is being used to help prevent and combat livestock diseases in the state. Laboratory space contains separate facilities for post-mortem work, pathology, blood-testing work, and equipment sterlization.

The principal speaker for the afternoon program was Dr. O. B. Garrison, director, S. C. Agricultural Experiment Station. Dr. Garrison outlined briefly the vast research program underway at the Sandhill Station, the main station at Clemson, and at the 4 other branch stations located throughout the state.

Other speakers who appeared briefly on the afternoon program included Thomas W. Morgan, assistant extension director; Ed Sallenger, Jr., Florence, president, S. C. Plant Food Educational Society; R. H. Lemmon, Winnsboro, retired Fairfield county agricultural agent; W. H. Rhodes, acting superintendent, Sandhill Station; Harold Major, attorney, Anderson; R. W. Bailey, county agent, Richland county; Roy J. Ferree, leader, Clemson Horticulture Extension Work; Dr. W. H. Garman, American Plant Food Council, Washington, D. C.; and S. A. Williams, extension cotton ginning specialist.

B. D. Cloaninger, head, Clemson Fertilizer Inspection and Analysis Department, arranged the program and was in charge of the day's activities.

St. Regis Consolidates Chicago Offices

St. Regis Paper Company announces that the Chicago sales offices of its various Divisions have been consolidated.

Get Better Ammoniation
WITH NATURAL-TEXTURE
V-C Triple Superphosphate

Quality is the watchword at the big, new V-C Triple Superphosphate plant at Nichols, Florida. Here, V-C Triple Superphosphate is produced so that it retains its natural, desirable texture—a big help to you in simpler, faster ammoniation in your plant. This superior texture also helps you cut down on recycling at your mixing machines. V-C Natural-Texture Triple Superphosphate is backed by many years of experience and production know-how. V-C pioneered in the production of concentrated superphosphate as far back as 1907, when it put into operation, at Charleston, S. C., the first large-scale plant in the United States.

Depend on V-C to supply your Triple Superphosphate needs. Newly-expanded facilities and years of skill in production now combine to bring you Natural-Texture Triple Superphosphate designed to fit your production programs. Write or call *now!*

VIRGINIA-CAROLINA CHEMICAL CORPORATION

401 East Main Street, Richmond 8, Virginia

VC PRODUCTS

MOBILIZATION OF SCIENCE FOR GOOD OF AGRICULTURE

America's farm and commodity organizations are closing ranks to support what may be the biggest development in agricultural research and education in almost a century.

They are proposing a long-range plan for putting science to work for agriculture just as hard as science is working for the rest of the nation's economy.

News of the plan came in a speech by Wm. Rhea Blake, Memphis, executive vice president of the National Cotton Council, at the opening session of the 16th annual American Cotton Congress.

Mr. Blake made particular reference to the system of government research and extension which had its origin in the 1860's, when the U. S. Department of Agriculture and the state land-grant college were set up.

Under the long-range plan, appropriations for this system of serving farmers through science would be just about doubled over the next five years.

While there is still a great deal of work to be done on the plan, state and federal agricultural workers have outlined their research and educational needs, listing facilities and personnel required to carry out the program. This has been approved at a staff level by all the organizations concerned, and now awaits action at the policy level. The proposal now is being studied by the Secretary of Agriculture and will be considered by the Budget Bureau and the White House before it is eventually submitted to the Congress.

28 STATE MEETING

(Following is a report of representatives of 28 States, issued at Memphis, Tennessee, the afternoon of June 8, 1955, following a conference to discuss long-range development of programs for rural development.)

Representatives of agencies from 28 States and the District of Columbia wound up a two-day meeting at the Hotel Peabody, Memphis, Tennessee, encouraged by the outlook for long range programs to boost incomes and stimulate better living conditions in many farming areas.

Among the methods of attack agreed upon by working committees and reviewed by the conference are:

1. On the Federal level, both the interdepartmental (Commerce, Agriculture, Labor, and Health, Education and Welfare) and intradepartmental committees now existing should continue to function.

2. State Advisory Committees representing all agencies and organizations servicing agriculture should be established and should take leadership both in State activities and in setting patterns for county committee operations and programs.

3. Emphasis at all times should be placed on local initiative in making decisions.

4. Commitments must be made as to the kind and amount of help needed at the county level to do the job. Programs should be vigorous and thorough. One work committee in an informal report put it: "Should not try to pawn off a feeble effort at rural development as the real thing."

5. The conference recognized the need for additional information and methods of obtaining that information or "research". The implication involves more than **new** research; it involves a compilation and evaluation of past and current research as it might apply to specific areas and circumstances.

6. Particular emphasis was placed on stimulation of local private initiative through civic clubs, churches, farm organizations, youth and other organizations.

7. Although rural development programs emphasize agricultural employment, they must include industrial, educational and recreational developments as well as those relating to health. Expansion of local industries should be encouraged.

8. Families must be encouraged to participate in the locally-devised programs. Confident, close relationships with family and neighborhood leaders must be established.

9. In summary, outstanding emphasis was placed on local initiative and participation, on availability of credit (but not as a cure-all in itself), and on the need for clear commitments on financial help and additional employees to get the job done. While many States are doing some work closely related to rural development, additional programs must be vigorously carried out. The States stand ready—as this meeting clearly demonstrated—to cooperate closely and promptly in a coordinated attack on low incomes and low standards of living in the farming areas under discussion.

States represented at the conference were: Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, North Carolina, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wisconsin. The U. S. Departments of Commerce, Labor and Health, Education and Welfare were represented, as well as officials of the U. S. Department of Agriculture's Agricultural Marketing Service, Agricultural Research Service, Federal Extension Service, Farmers Home Administration, Forest Service, Rural Electrification Administration, Soil Conservation Service, and Office of the Secretary. The Farm Credit Administration also sent a delegate. About 125 persons attended the conference.

DEL-MAR-VA Annual Meeting

The Del-Mar-Va Peninsula Fertilizer Association 34th annual convention was held June 25, George Washington Hotel, Ocean City, Md. Participating briefly in the program were Edgar H. McGrath, president, and Louis H. Wilson, representing both the American Plant Food Council and the National Fertilizer Association.

Dr. George E. Smith, Professor of Soils, University of Missouri, addressed the group on "What Makes Fertilizer Move." Dr. Smith told the group that fertilizer is the one cost the farmer can recover; if the year is bad he can capitalize the next year on the application. Taxes are not refunded and labor is lost, along with other costs, but fertilizer is there for the next season.

Convention committees were: Program: Enos Valliant, chm., Edgar McGrath, J. Otis McAllister; Registration: Ted Smith, Chm., James R. Ford; Ladies Entertainment: Mrs. John Morris, Chm., Mrs. T. Scott Purse, Mrs. Wm. B. Tilghman, Mrs. Ralph A. Ross; Mens Entertainment: J. Otis McAllister, Chm., Dallas D. Culver, F. Nash Strudwick.

The association's membership is comprised of the following companies: A. S. Wolley Co., Seaford, Dorchester Fertilizer Co., Cambridge, E. S. Valliant & Son, Inc., Centerville, Farmers and Planters Co., Salisbury, Huston, Culver & Co., Seaford, Milford Fertilizer Co., Milford, Peerless Fertilizer Co., Chestertown, Valliant Fertilizer Co., Laurel, Warner W. Price Co., Smyrna, William B. Tilgham Co., Salisbury- Pocomoke, Worchester Fertilizer Co., Snow Hill.

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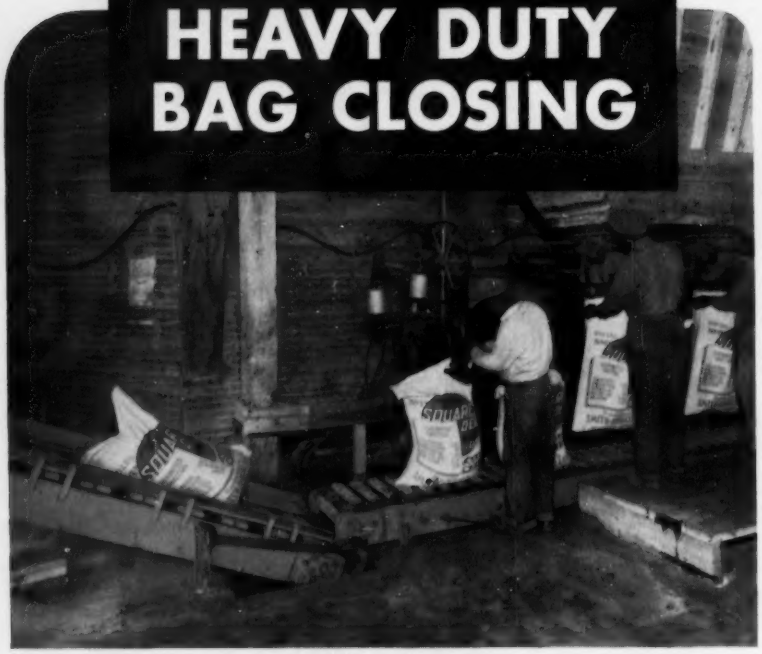

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